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THE PRACTITIONER'S NEED OF AN INTELLIGENT SKEPTICISM*

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WHEN my name was added by you to the roll of those, who have given your annual discourse in the years that have gone by since the custom began, I realized that I had been taken into a truly goodly company and was proud of the honor. At once my thoughts turned to an annual discourse delivered almost one hundred years ago (ninety-five years ago to be exact), which by many is regarded as one of the classics of American medical literature, and I thought, had I the wisdom and choice of words of Jacob Bigelow I might, as he did for the profession of his day, bring to you, the profession of today, a message that is as truly needed now as then. Jacob Bigelow entitled his message "self-limited diseases", while I shall call mine "the practitioner's need of an intelligent skepticism".

Both of us have in common the idea expressed in the quotation graven in translated form on one of the buildings of the Harvard Medical School, "life is short and the art is long; the occasion instant, experiment perilous and decision difficult" and are concerned with the apparent too great readiness of the medical profession to assume without any intelligent skepticism that what follows necessarily is caused by what immediately precedes.

In Jacob Bigelow's time this attitude of mind had led physicians into plans of treatment with drugs in large doses coupled with depleting measures such as vigorous emesis, active catharsis and repeated copious bleedings. They believed that, because their patients got well, they cured them. In our own time similar trends of reasoning or perhaps mere assumptions, devoid of any logical process of mind, perpetuate ineffective therapy in individual patients as well as in various diseases, or induce the use of expensive medicaments, where ones of little cost are equally efficacious.

It is a remarkable thing that in 1835 Jacob Bigelow's keen, analytical mind selected a group of diseases as being self-limited. His keenness of perception is attested by the fact that with the lapse of ninety-five years and with all the progress that has been made in medical science during this period but one disease, called by Jacob Bigelow self-limited, can be transferred definitely to the group over which the medical profession can exert direct control and cure.

To understand what Bigelow meant by self-limited diseases, let me quote from his annual discourse before the Massachusetts Medical Society in 1835.

> "Certain morbid processes in the human body have a definite and necessary career, from which they are not to be diverted by any known agents, with which it is in our power to oppose them. To these morbid affections, the duration of which, and frequently the event also, are beyond the control of our present remedial means, I have, on the present occasion, applied the name of Self-Limited Diseases.
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> "By a self-limited disease, I would be understood to express one which receives limits from its own nature, and not from foreign influences; one which, after it has obtained foothold in the system, cannot, in the present state of our knowledge, be eradicated, or abridged, by art,—but to which there is due a certain succession of processes, to be completed in a certain time; which time and processes may vary with the constitution and condition of the patient, and may tend to death, or to recovery, but are not known to be shortened, or greatly changed, by medical treatment."

Self-limited diseases Jacob Bigelow divided into three classes: (1) the "*simple*", in which the disease observes a continuous time and mostly a definite seat; (2) the "*paroxysmal*", in which the disease having apparently disappeared returns at its own periods; (3) the "*metastatic*", in which the disease undergoes metastasis or spontaneous change of place. Jacob Bigelow includes under (1) whooping cough, measles, chicken pox, scarlet fever, vaccinia, smallpox, erysipelas, typhus (typhoid?), salivation by mercury; under (2) epilepsy, angina pectoris, mania, melancholy, asthma dependent on emphysema of the lungs, tubercles, gravel in the kidney and symptoms produced by

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ascarides in the rectum; under (3) gonorrhea, mumps and acute rheumatism. Were we today enumerating self-limited diseases, as they were defined by Jacob Bigelow, scarlet fever seems almost the only one we could eliminate from Bigelow's list as now being directly curable. What Bigelow had in mind in relation to symptoms produced by ascarides in the rectum possibly now should no longer be grouped as a self-limited disease. The acute attacks of epilepsy and angina pectoris now can be mitigated, though the underlying disease cannot be cured. On the other hand Bigelow's list easily could be lengthened greatly by the addition of examples, for unfortunately we have learned to recognize new diseases decidedly more rapidly than we have found out how to cure them.

Bigelow was far from being a nihilist in matters therapeutic. He realized that much could be done by the physician to mitigate the discomforts of the patient during the course of these self-limited diseases, and that often the patient could be rendered fitter to resist these diseases. Though grouped as self-limited, it by no means followed that the patient would survive his self-limited disease; death often overtook the patient before the self-limited disease ran its course and reached its limit; often, too, proper treatment prevented just such deaths. Bigelow sought to impress that it was far better for the physician to do nothing rather than by what he did to harm his patient's chance of survival or to render his patient less rather than more comfortable. Bigelow was seeking to inculcate skepticism as to believing that a given therapeutic effect resulted necessarily from what had been done by way of treatment. Just such skepticism, still, is greatly needed by the medical profession.

Failure in present times to recall Jacob Bigelow's point of view is, as in his time, leading practitioners to perpetuate ineffective measures of treatment. They still argue that, because they gave to patient A a certain form of treatment and he got well, patient B with the same disease conditions will be cured by the same form of treatment which was given to patient A.

Physicians always, and rightly, have been desirous of improving methods of treatment and so naturally lend a ready ear to clever descriptions of what new drugs will accomplish. These new drugs often are costly, a fact which renders them less desirable from the patient's point of view but more desirable from the viewpoint of he who makes and sells the drug. The physician reasonably should be skeptical of advice emanating from him who will profit by the sale of the medicament being extolled and should seek evidence from other sources. It may be that the new drug is a great improvement on older remedies, but it would be wiser to await extensive testing on large numbers of patients under conditions of controlled observation. Frequently it turns out after such critical trial that the new drug is even less efficacious than the old. It should be recognized that the determination of the value of therapeutic measures is exceedingly difficult. The fact that something new is being tried usually exerts a very direct effect on the mind of the patient, and improvement may result from this mental effect and not from the thing being used in treatment. The physician's mind, too, is not uninfluenced by extraneous conditions such as novelty, enthusiasm of experiment, etc., toward a bias in favor of the therapeutic measure being tested. Nothing could attest this better than the periodic rise in the value attached to some form of treatment with subsequent depreciation often to total discarding of the method. One familiar with the history of medicine well might construct a curve with upward and downward swings and prophesy that in a certain year an enthusiasm for a certain treatment again would be due, as does the astronomer plot the curve of the path of a comet and foretell for us when again the comet will return to our sky.

Knowledge of these things should make us skeptical, and this skepticism ought to prevent many unfortunate enthusiasms, which periodically have swept over the medical profession, but alas, they do not. Practitioners today, as those in Jacob Bigelow's time, are fully as guilty of false reasoning and unwarranted enthusiasms for therapeutic measures. This applies not alone to the rank and file of practitioners; their leaders, too, not infrequently are misguided and misled.

Let me take a few concrete examples to show why, in my opinion, more skepticism needs to be exercised by practitioners than is the case at present.

The theory of focal infection well will serve as one such. This is a theory which has a considerable degree of clinical and experimental support, and yet many among the best trained medical men are unwilling to accept much of the evidence offered in its support and feel unwilling to apply it to the extent advocated by its chief supporters, though granting the validity of the theory and its applicability in certain patients. My own feeling is one of considerable skepticism as to many of the claims of the adherents of this theory, though recognizing the occasional striking improvement in certain patients that follows clearing up a genuine chronic focus of infection.

In the hands of many practitioners extraction of teeth, removal of tonsils and drainage of sinuses have become veritable panaceas of cure for all varieties of pain and many other symptoms. Had they the sort of healthy skepticism that it seems that they should possess, instead of carrying out at once some one of the procedures just referred to, as so often is done, they would go through some such process of thought as the following. The theory of focal infection appears to be a tenable hypothesis sup-

ported by numerous observations, even if not proved. If so, the first thing to do is to demonstrate the presence of a focus of infection in the given patient. Next, careful examination of the patient should be made to determine the absence of evidence of other possible cause of the symptoms. Then, consideration should be given to determining whether the focus of infection can be cleared up, and if so, whether the removal of the focus of infection at that stage of the disease will have any effect on the disease process. Finally, will the necessary surgical procedures do injury to the already ill patient? To follow such a train of thought surely is desirable, but judging by my own experience with patients seen in consultation or referred to the Peter Bent Brigham Hospital, surely this cannot be done generally by physicians.

Far too often it seems that, with no real evidence of disease in them, sound teeth are extracted, normal tonsils are removed or uninfected sinuses are drained, though it might have been possible, before acting, to obtain much better evidence than was obtained as to whether a focus of infection existed in these places. It appears to be forgotten that normal teeth usually function better than artificial, that most uncomfortable and serious sore throats do occur in those who have undergone tonsillectomy, that tonsillar residues, left behind even by skillful operators, often maintain infection as did the original tonsils, that drainage of a chronically infected sinus frequently fails to result in a normal sinus, and that some of these procedures, especially in older patients, entail a prolonged and tedious period of convalescence, while an occasional patient dies as the result of such operations. With these thoughts one should question always the advisability of attacking a possible focus of infection to see whether its removal will help the patient. Moreover, often even when disease is present in teeth, tonsils or sinuses, more careful estimate of the patient's condition would show the futility of expecting help from attempts to clear up these foci of infection.

Failure to reason as indicated above is all too often illustrated by patients I see. Very recently two patients came to my wards within a short time of each other; both suffered pain in the back; both had had teeth extracted as a measure of treatment. Each had metastatic carcinoma of the vertebrae to cause his pain. Another patient had pain in his side from a neoplasm in his lung, and teeth were extracted. Tooth extraction had been futile in these patients and would not have been carried out, had thought been given to the patient's history, and a thorough examination of the patient been made. The teeth may have been bad, but their extraction could have no helpful influence on the patient's condition, and well may have set the patient back in his general condition.

Severe and advanced nephritis is seen increasingly in patients recently having undergone operation, particularly extraction of teeth, to cure a real, or supposed, focus of infection. Even a casual study of the patient would have shown that long since the stage has been passed in which any such procedure could be of any possible benefit.

Bacterial endocarditis is seen not infrequently in patients in whom teeth recently have been extracted after there is ample evidence that bacteria were already growing on the heart valves; how any one with any knowledge of bacterial endocarditis could think that the removal of even a badly infected but non-painful tooth could in any way make this type of patient more comfortable or stay the progress of a fatal malady, I cannot see.

Patients with trifacial neuralgia coming to the hospital for surgical treatment notoriously are edentulous. Had tooth extraction been of help, the patient would not have progressed to the point of seeking surgical amelioration of the pain.

Over and over again patients with arthritis are seen sans teeth, sans tonsils, sans appendix, sans gall bladder and, dependent on sex, sans prostate or Fallopian tubes, in varying combinations, with little or no discoverable evidence that any of these structures actually were diseased, when their removal was advised, and this all too frequently in that form of arthritis known to be rarely related to focal infection.

The extent to which this is going on in our medical community is indicated by a recent answer of a medical student, when asked to make a diagnosis of an x-ray of a skull. Immediately came the answer, "brain tumor". "Why?" said the instructor. "The patient has no teeth" was his answer. This student had observed that, almost as a rule, patients with brain tumor had had teeth extracted by way of treatment before the diagnosis of brain tumor was made.

I am sorely tempted to present somewhere a paper entitled "the damnable practice of pulling teeth" to emphasize the skeptical attitude of mind which the practitioner should apply before advising in regard to measures of treatment involving focal infection in relation to disease. Focal infection probably is a causative factor of numerous symptoms, and I am not opposing their removal in such cases, but I insist that (1) there must be obtained definite evidence of the existence of a focus of infection; (2) the patient must be examined carefully to eliminate other cause for the disturbance; (3) before treating the focus of infection by its surgical removal, there must be evidence that the patient's condition is not too advanced to be remediable; and (4) the physician must feel sure that the surgical procedures incident to treatment of the focus of infection will not harm the patient. Finally, I have no sympathy with the practice of removing teeth or tonsils or draining a sinus or operating on any other structures on the basis that the patient's condition may result from focal infection and that focus

may reside in the structure whose removal is advised. This latter seems to be the line of reasoning of many physicians.

The way in which digitalis is used, is another example of a need for skepticism. The best medical authority of the day maintains that all forms of digitalis have the same effect, that all are effective when given in adequate dosage, and that rarely is it necessary to give digitalis by other than the mouth route. The U. S. Pharmacopoeia provides three varieties of digitalis preparation for mouth dosage with all necessary standards to ensure efficiency of these preparations. There is satisfactory evidence that the average drug store is supplying these preparations according to pharmacopoeial standards. There is evidence that to date no effective digitalis preparation of any sort is non-nauseous, when given to a point just beyond full digitalization; when non-nauseating digitalis is produced, the profession will have acquired a most dangerous drug, unless some methods better than those now available to practitioners are found to indicate when enough but not too much digitalis is given. There is no evidence that any special form of digitalis is superior to pills of powdered leaves or tincture, except that very rarely a special preparation is needed for intramuscular or intravenous use. This is information readily accessible and repeatedly presented to the medical profession. Were it kept in mind, the physician would be rightly skeptical of much that is told him by the manufacturing pharmacist. As all forms of digitalis are good, here it is largely a question of cost, but the physician should consider cost.

The pill of powdered digitalis leaves is about the simplest possible form in which digitalis can be given by mouth. Long experience with it has shown me that in this form it is satisfactorily effective. Powdered digitalis leaves often are dispensed in capsules. The only difference between the two is the increased cost in capsule form. According to a circular just received from a manufacturing druggist, the amount of digitalis used at the Peter Bent Brigham Hospital per annum, if given in capsule form, would cost $288.00 more than if dispensed in pills. As both are equally effective, why not save $288.00 a year or $2880.00 in ten years? In similar way $210.00 a year can be saved by using pills rather than a certain proprietary form of digitalis; more if other preparations were used. Pills cost less than tincture of digitalis and are equally effective. We save at the Brigham $120.00 a year by not using tincture. Now if certain special forms of digitalis are used, the increased cost is vastly greater. Were we to use digitalis in ampoules as a routine, the increased cost of digitalis at the Brigham for a year would be $12,840.00 or $15,140.00, depending on whose preparation we used, over the amount actually expended for digitalis in pill form, though there are extremely few instances in which there is any need for intramuscular or intravenous digitalis, and except for these, in my opinion pills are as good as any other form of digitalis.

I have used digitalis as an example, for every physician frequently receives advertising material or listens to a drug house representative extolling the virtue of some special form of digitalis and so is very familiar with this situation. With digitalis it can be easily shown that the chief difference between all of these is cost, and the advantage is solely to the producer and not at all to physician or patient. Exactly similar conditions hold for many other groups of drugs, though it is not always so easy to determine the actual value in treatment and cost relationship as is the case with digitalis.

Just at present hypnotic drugs are much advertised, and new forms continuously are being introduced. Progress is being made slowly, but there seems no need for so many hypnotics, some of which actually are less effective as hypnotics than older forms, and often ones equally effective as older ones cost more. Recently I became dissatisfied with the effects obtained from hypnotics as used at the Peter Bent Brigham Hospital, having the impression that results were not so satisfactory as were being obtained four or five years ago. I noted that several of the more recently introduced hypnotics were being used. I suggested to one of my colleagues that he make a few tests of hypnotics in regard to efficiency. He selected 10 of the more recent ones, which had been accepted in New and Non-official Remedies of the American Medical Association for 1930 (luminal, amytal, ipral, neonal, phanodorn, bromural, carbromal, sabromin, chlorbutanol and butyl chloral hydrate) and compared them with codeine, barbital and chloral. Rather small doses were used, and the hypnotic effect was regarded as satisfactory, if in less than one hour the patient fell asleep and slept through the night. When more than one dose was required to get this effect, this was noted, and an index of efficiency was calculated from the number of doses needed to cause a good night's sleep in a given group of patients with an index of 100% as a perfect score, which would be the index had twenty doses of a given hypnotic caused twenty nights' satisfactory sleep in a given group of patients. About twenty tests of this type were run with each hypnotic. Any unpleasant after-effects were noted; these were infrequent and not relatively different with the different hypnotics. As far as these studies go, there was no evidence of the superiority of any of the ten tested over barbital, chloral and codeine; some were distinctly less effective. Costs varied much; expressed in a numerical comparative way barbital was 3.7, chloral 0.75 and codeine 9.5. All of the others cost more than barbital, going as high as an index of 25. No more definite statements than these should be made, based on such preliminary observations,

but at least they justify us in being skeptics, when listening to descriptions of the great value of some new hypnotic. It sounds as if some of these new hypnotics were introduced in order that the particular firm might have a special hypnotic for sales value. It is well to remember that barbital, the cheapest of this group of new hypnotics, costs five times more than chloral for the same number of equally effective doses and that several cost almost seven times as much as barbital, or thirty-five times as much as chloral in doses of equal efficiency.

Some diseases require long periods of time before any very serious consequences result, and in these it is particularly difficult to judge the results of any newly introduced form of treatment. Rheumatism is such a disease, for it may take 10 to 15 years before cardiac insufficiency results from an acute attack of the disease which in itself is almost of negligible consequence. Syphilis is another, for in syphilis except for its contagiousness the primary and secondary stages are quite mild as a rule, and 15 to 20 years usually must elapse before the serious consequences appear in such forms as syphilitic aortitis with aortic insufficiency or aneurism or as general paresis.

It is only in the present period, for example, that we are in a position to judge of the efficacy of salvarsan in curing syphilis. Early we learned that Ehrlich's hope that it would be a drug capable of speedily sterilizing the body of spirochaetes was doomed to disappointment. Recently disquieting reports begin to appear, which indicate an increase in syphilitic aortitis and general paresis to suggest that salvarsan by itself has not been a really effective method of treating syphilis. Much more evidence is needed, before we can feel sure of this, but such suggestive evidence, as we have, should justify skepticism of any remedy for syphilis, including salvarsan, advocated as other than an adjuvant of mercury and iodides. We should keep in mind that about twenty years' observation of patients is needed to determine whether any new antisyphilitic remedy is a real cure; little is gained from speedy clearing of primary and secondary manifestations of syphilis, if years later the patient is to develop aortic disease or general paresis or some other equally serious late manifestation of syphilis. So the practitioner should be skeptical of any reports advising methods for treating syphilis other than those reporting patients treated and followed for at least 20 years. Much the same applies to rheumatism though here evidences of impending cardiac disaster appear far in advance of that disaster.

These examples will serve to indicate why physicians should take a skeptical attitude toward claims for efficiency for newer forms of medicaments. Even when effective enough to justify inclusion in New and Non-official Remedies, it does not follow that they are more effective than older forms, or if equally effective, it may be that they cost more and so have in that sense a distinct disadvantage. Many new remedies constantly are being advertised. Often one can form no idea from the circulars what they consist of, and there is offered no real evidence of their efficiency. In my opinion these should not be used at all by physicians until such time as they have been studied in well organized clinics or observed and reported on by well trained clinicians. It is to be remembered that in a relatively short time newer drugs now are investigated by the American Medical Association and soon included in New and Non-official Remedies. Such as do not receive this stamp of approval scarcely should be used at all by practitioners. Even those accepted may prove to be of no great service.

At the present time much of ill omen is reputed to result from sluggish bowels. The high colonic irrigation is the fetish of many and particularly of those who treat arthritis. By them we are told of horrid messes removed from bowels, messes which they say must have tarried many days in the large bowel. A justified skepticism about all of this should be aroused by such observations as the following: post-mortem examination rarely reveals evidence of such colonic retention as they describe; patients with Hirschsprung's disease (megacolon) may move their bowels only at weekly or fortnightly intervals, and they rarely, if ever, show arthritis; x-ray observation tells us that any enema is a high enema, for the colon fills quickly from end to end with greatest ease; there is a considerable body of evidence to show that colonic contents move abnormally quickly through the gut in many arthritis patients, while slowing this rate of flow brings improvement in the arthritis. So far, I know of no positive evidence in favor of this theory as to the cause of arthritis and its cure, and the many uncured arthritics, who have undergone the treatment, at least seem to justify doubt as to any constant efficacy from colonic irrigations. Skepticism seems justified, even though one may not agree with one skeptic who says that the high colonic irrigations are but a form of masturbation.

Extravagant claims for treatment with endocrine glands are made with great frequency, unsupported by satisfactory clinical evidence. In this field surely there is much need for skepticism. I might remind you that thyroid gland substance, which is so definitely effective in myxedema, besides being efficacious in myxedema, is advised for the treatment of obesity, nephrosis, sterility, arthritis, low blood pressure, lack of appetite, heart block, etc., as a preventive of postoperative thrombophlebitis and as a general tonic in pepless people. In drawing room conversation it seems that almost every individual says her physician is giving her thyroid, and the rare person, who discovers that her physician is not prescribing thyroid for her, feels that surely there is something lacking in her doctor. It

hardly seems possible that one substance could accomplish the cure or amelioration of so many disturbances. Anyway the proof adduced certainly is not flawless, and skepticism is advisable.

Preventive medicine is another field in which, unfortunately, extravagant claims all too often are made. To prevent a disease or a group of diseases is a great accomplishment. Modern methods have curtailed and in certain instances almost eliminated a number of diseases, by discovering and preventing means of transmission, and by developing protective measures applicable to the community and to the individual. Parts of the globe, formerly scarcely habitable by our race, have been rendered safe for the white man. No one would or could belittle these accomplishments. However, little advance has been made in the prevention of the occurrence of many diseases, especially the chronic diseases that play so large a part in the disability of individuals in our part of the world.

The problem of preventive medicine in relation to chronic disease in the adult appears to me to be very largely unsolved, or to put it another way, we have very little knowledge of what methods should be followed to decrease the incidence of those chronic diseases such as nephritis, cardiac disease, hypertension, arteriosclerosis, etc., which constitute the cause of death in a very large per cent. of adults, especially in those beyond the forty year period of life. Even a chronic disease of known infectious origin, such as tuberculosis, according to many observers, may have been influenced very little by our methods of preventive medicine; some even go so far as to say that the entire antituberculosis campaign has been unproductive of any direct result, that the decrease in tuberculosis began before the antituberculosis campaign had its inception, antedated the discovery of the tubercle bacillus and has merely steadily progressed in spite of all of this. Perhaps this is not true, but at any rate there is enough ground for doubt to justify an enquiring skepticism of the results of preventive medicine even in such a disease as tuberculosis, and as far as chronic disease of great frequency in adults, but of unknown etiology, are concerned, there seems very little ground for the rather generally implied claim that preventive medicine is in a position to formulate adequate measures of prevention.

This is not to say that no progress has been made, and that of prevention of chronic disease in the adult we have no knowledge. It is, however, to say that our knowledge along preventive lines is scant, and much of the advice that we can give is in large part empiric or yet in an experimental stage. This should serve to temper the enthusiasm of claims for preventive medicine and stimulate zeal for further investigation, extensive in its range and prolonged over long periods of time.

Let me illustrate what I mean by using chronic nephritis as an example. After some twenty-five years of particular study of this disease, what have I to advise when the patient with slight evidences of presumably early chronic nephritis presents himself for examination and an outline of what to do to stay the progress of the disease? It must be confessed that there is but little in a concrete way to do beyond correcting such conditions as are observed on physical examination, if they can be corrected, and saying to the patient to lead a rational, normal life of decreased strains and to avoid infections. Advice as to diet and fluid intake is entirely empiric. Avoidance of infection for the nephritic may be somewhat helped by advice but probably awaits a solution of the problem of prevention of upper respiratory tract infection before much progress can be made. So far we have made almost no advance in managing upper respiratory infections, and yet these seem to be very important factors in the cause of chronic nephritis as well as of other chronic diseases of adults. An intelligent physician can help much in planning a more balanced, saner life for the individual, and this will help to prolong the time before the patient succumbs to this disease.

What I have said of nephritis also applies to the various vascular lesions and their results, to cardiac disease, to chronic bronchitis and emphysema, to chronic degenerative disease of the central nervous system except those of syphilitic origin, to gall stones, peptic ulcer, gout, cancer, etc. Of some we know more as to cause, of others less, but of none, much, and until we know more of causes we cannot expect to do much to prevent. It seems to me wise to acknowledge freely our limitations in preventive measures and desirable to investigate more and talk less of prevention of disease.

The periodic physical examination is highly desirable, for certain defects and diseases, easily discovered thereby, may be treated in such ways as to help in the prolongation of healthful life. On the other hand such extravagant claims for the periodic health examination as the following which I quote from a recent "health bulletin" can but be harmful:

> "It is probably safe to say that if every person, young and old, infants, pre-school children, school children and adults, had an annual complete physical examination and followed the physician's advice, at least ten years could be added to the average length of life to say nothing of the misery and unhappiness which could thus be avoided.
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> "Such examinations would avoid many cases and most deaths from tuberculosis, many cancer deaths, a large number of heart cases, much of the rheumatism which is found in middle adult life, many cases of nephritis, and most of the physical breakdowns which occur so frequently in persons between forty and sixty years of age."

To publish such statements will not lead the intelligent physician to enthusiasm for the

periodic health examination, while a more moderate statement would make it evident that the periodic health examination is of enough benefit to make it a wise investment for every individual. Practitioners, it seems to me, should be even more skeptical than they are of much of the so-called health propaganda of the day.

Enough examples have been given to make clear that many practitioners would profit by a healthy skepticism and especially in regard to therapeutic measures. Such an attitude is entirely compatible with progress. Skepticism does not imply that new methods of treatment should not be tried. They should be tried with the careful check of controls, comparing the new with older methods. Organized hospitals are best equipped for such comparisons, but every well-trained practitioner may conduct his own studies, if he but carefully observes.

To doubt is desirable; not to try would be reprehensible. Every physician should be an investigator. Much of the practice of medicine becomes, by reason of its nature, an experiment. The same disease in different individuals causes different reactions, and so treatment needs constant variation to fit this individuality of our patients. Careful notes of the results of treatment of any sort can be made by any physician; this is investigation. When the accumulated data is studied critically, deductions of very considerable value may be made and important light thrown on therapeutic measures. There remains much that can be studied with very simple apparatus on patients at home as well as in hospitals. In recent years so many complex pieces of apparatus have been devised to record this or that about patients, that we are tempted to forget that the physician's five senses and a critical intelligence with very few mechanical aids still are capable of making important advances in medicine. It is well to remember that most of what we have learned in the past in medicine came from such simple methods rather than from the application of complicated apparatus. In the field of methods of treatment there still is need of much investigation. The group of self-limited diseases, as defined by Jacob Bigelow, is a very large one. The fact that scarlet fever rather recently has been removed from this group lends encouragement to the idea that others, too, may be removed by discovering methods for their cure or prevention. Many conditions that now can be ameliorated, may, by reason of investigation, be brought under better control. Many remedies, that now we use, need a better understanding of why and how they work. Many undiscovered remedies probably await the results of trial. Valuable still should be the contributions of students of medicine, who with intelligent skepticism combine thought and knowledge in the study of the many problems that confront practitioners of medicine. An intelligent skepticism assuredly is needed by practitioners now as in years past.

INDUSTRIAL MEDICINE AND PUBLIC HEALTH*

BY W. IRVING CLARK, JR., M.D.†

As we look back, the past twenty years has in many respects been revolutionary. Manners and customs have changed. New economic theories have been propounded and acted upon. An amendment to the constitution affecting the intimate lives of the people has been in operation. Mechanical inventions have speeded forward. Life moves in a new tempo.

It is natural that the practice of medicine should have been affected by such basic changes and that new methods should have arisen to meet new problems. It has seemed to me that the discussion of one of these new branches of practice might well be considered especially as it appears to present interesting possibilities of future development and to be allying itself with one of the older branches of medicine: namely, that of public health. The branch of practice to which I refer is Industrial Medicine.

At the beginning of the present century the United States was an agricultural country. The chief products were derived from the soil, prosperity was determined by the size and quality of the crops. Manufacturing, while it was making great strides, was still of less value than agriculture. Factories were becoming an important factor in the employment of labor, but though numerous, most of them were small in size, each one employing a limited number of operatives. It was the era of the beginning of big business. Slowly but with growing momentum, factories began to group themselves into great corporations employing a thousand or more employes. At the end of a decade progress was accelerated. Then came the war calling for every manufacturing resource of which the country was capable. With the war came industrial medicine.

Whether this new development appeared as a result of the antituberculosis crusade, whether it was inspired by the Workmen's Compensation Acts, which became effective at this time, or whether it was a normal development of medicine to meet a great need, is a matter of conjecture. It is safe to say that it did not develop as a branch of Public Health. Its contact with this service in its infancy was insignificant.

*The Shattuck Lecture delivered before the Massachusetts Medical Society June 17, 1930.

†Clark—Surgeon to Norton Company, Worcester. For record and address of author see "This Week's Issue", page 1220.

Whatever its cause, its activity was immediate, its leaders were enthusiastic, and its outlook was both economic and altruistic. Industrial managers, endeavoring in every way to conserve man power, seized upon the idea and developed it. Thus industrial medicine became established.

In the meantime, public health had been proceeding along a slower and in some directions a more restricted course. Long established in both Federal and State governments, its problems were confined to the prevention of contagious disease in the community at large; its contact with factories had never been close. Its interest was largely with the population as a whole; questions pertaining to the health of the workers in factories, such as sanitation, ventilation, etc., were left in the hands of the State Boards of industry. And yet, in spite of the apparent lack of mutual interest, in spite of the totally different aims of these two branches of medicine, Industrial Medicine and Public Health began to become more and more closely knit.

At its annual meeting in 1922, the American Medical Association added Industrial Medicine to its Public Health Program. In the same year the Harvard School of Public Health was established. Industrial Medicine, a subject formerly taught in the Medical School, was at once transferred to its curriculum.

What is the reason for the drawing together of these two branches of medicine? In order to obtain an answer it is necessary briefly to outline the present practice of Industrial Medicine and its position in the community.

Industrial medicine embraces three fields: hygiene, practice and toxicology.

Industrial hygiene studies and endeavors to control those general factors of the worker's environment which are unfavorable to health.

Industrial medical practice studies the prevention of accident and of disease among the workers, diagnoses disease, and both diagnoses and treats industrial accidents. Its chief function is medical supervision of the employes.

Industrial toxicology studies, endeavors to prevent, and in some instances treat, cases of poisoning occurring among workers exposed to toxic products in manufacturing.

These three functions are the work of the industrial medical department. Anything which is not included does not belong to industrial medicine.

From this outline it will be seen that a factory is really a community of workers and that the Industrial Medical Department has as its duty the preservation of health, the study of disease, and the treatment of accident within its boundaries.

While short excursions into the wilderness beyond are occasionally necessary, these are merely exceptions which prove the rule that industrial medicine is practiced in the factory among its workers and only in the factory. Thus there is a definite line drawn between the factory community and the general community outside the factory walls. When, as is sometimes the case, the factory, like the old feudal castle, dominates the community and through its industrial medical department provides full medical care not only for its employes at their homes but, occasionally, for their families as well, it is not providing industrial but community medicine.

Having now outlined what industrial medicine comprises, let us consider more carefully the detail of its functions and analyze its connection with public health. In order to do this clearly we must first consider the position which the industrial medical department assumes in the organization of a manufacturing plant.

Any factory has four great divisions: the Production Division which has to do only with those machines and with those operations which change the crude to the finished product; the Sales Division which has for its object the sale of the goods produced; the Administrative Division which supervises all activities in the factory, tying them together and arranging for their financing; and the Personnel Division which includes all activities which are not administration, production, or sales.

It is under the Personnel Division that the industrial medical department naturally falls. Here it finds itself in intimate contact with the employment department and with the safety engineering department. These contacts will be described and explained later.

The material equipment of the industrial medical department resembles that of any good dispensary. In addition to this there is usually a specially arranged room in close proximity to the employment department where physical examinations of applicants for employment are made. The personnel of the medical department, consisting of doctors, nurses and clerical assistants, are specially trained to carry on the hygienic and toxicological studies for which they are responsible.

The industrial physician, then, is required by his work not only to be a good dispensary worker but also to have an appreciation of the health hazards in his factory and an interest in their prevention, as well as the responsibility of sanitary control. In order to carry out these functions he must know the factory thoroughly and be in close coöperative touch with the plant's engineering department. As Rector[1] in a recent publication has said,

> "When the medically trained mind has unravelled the knot, it requires the application of engineering skill to complete the elimination of the hazard either in construction or process. In no other field of medicine is there such a close relation to the engineering profession. Either profession alone is unable to find the answer, and where there has not been close coöperation between the physician and the engineer, the problem has remained unsolved."

There is, however, another function of the industrial physician which is almost the basis of

industrial medicine. This is the preservation of the health of the workers in the factory by medical supervision. Medical supervision in a factory is so different from anything in any other branch of medicine that at this point it should be briefly considered.

Medical Supervision is carried on as follows:

A complete physical examination is made of each applicant for employment before he begins work.

The examination is recorded.

If the applicant has any major defects, these are entered on a special list.

Those presenting such defects are reëxamined periodically and careful notes are made of any changes in their condition.

All employes are urged to come to the dispensary for examination and advice if slight symptoms of any kind develop while they are in the employ of the company.

Thus the work of the factory dispensary consists largely in diagnosing symptoms and signs which are trivial, serious, or which indicate an early stage of disease.

Treatment is confined to minor conditions, usually those for which a doctor doing regular practice is not consulted. Such conditions as coryza, malaise, indigestion, myalgia and headache form the bulk of the medical cases, while cut fingers, bruised toes and strained backs represent the types of traumatic cases most frequently presenting themselves.

The object of prompt and efficient treatment of these minor troubles is to maintain a healthy force of workers. In addition to this it provides an excellent first step in the prevention of more serious conditions both medical and surgical. If a case beginning as a simple coryza develops into a bronchitis needing treatment, the patient is not only urged to see his family physician but is sent home. He is not allowed to return to work until released by his doctor and until the industrial physician has determined by an examination that he is physically fitted to return to the work which he was doing when taken sick. If he is unable to do this he is given temporary employment in another department. This same system is followed for cases returning to work after an accident which has incapacitated the patient.

In addition to the dispensary nurses, the industrial medical department has as assistants one or more visiting nurses. The object of these nurses is to form a contact between the medical department and the sick or injured worker. The visiting nurse calls on worker patients who are in the hospital or at home reporting the progress of the case at the factory dispensary, and coöperating in any way that she can with the hospital authorities, the patient's family, and the private physician. She combines the function of a social worker with that of a visiting nurse, frequently assisting the family physician in the solution of those social and family problems of the patient which are so often encountered.

When the worker lives in a city in which there is a district nursing service, the factory visiting nurse functions almost entirely as a social worker, doing little or no nursing. In smaller communities she performs both social and nursing functions. Thus it is possible for the factory to keep in touch with its sick or injured workers from the time they leave the factory until they return to work.

In order to round out the picture of the functions of the industrial medical department, its contacts with other factory departments must be outlined. Those with the plant's engineering department have already been pointed out. The contact with the employment department and with the safety engineering department will now be briefly sketched.

In all modern American factories, workers are employed and are discharged through a centralized employment department. In the case of employing a worker, the department determines his ability to fill the position for which he is to be hired. If the applicant fulfills the requirements he is sent to the medical department for a physical examination. It is the duty of the medical department to decide whether the worker's physical condition is such that his employment at the work to which he will be assigned will not be a danger to the worker himself, to his fellow workers, or to property. As a result of the examination the applicant is either rejected or he is placed in a department in which his physical defect will not be hazardous. This latter operation is called placement and is of economic value to both the defective workman and to the factory.

It is interesting to note that except in the case of contagious disease and for a few serious defects, placement has reduced rejections to a very low percentage. All transfers are made through the employment department, so that if it is necessary to change a man's work because of his physical condition, of recent sickness, or of accident, a close coöperation must exist between the medical and employment department.

The safety engineering department works to prevent accidents. This it does by guarding machinery, by promoting safety through posters, and by personal instruction of the foremen and of the workmen.

The duty of the safety engineer is to investigate and to report accidents, though this latter function is sometimes carried out by some other department. In his investigation of an accident, the patient's story of how the accident occurred, as told to the industrial physician, is of utmost importance, as is the record of the type and severity of the injury. In some factories the supervision of the effective operation of dust or fume exhausts and similar devices to prevent industrial disease is part of his duty.

Thus the contact between the medical depart-

ment and the safety engineer is close enough to require mutual information, interest and coöperation.

From this brief sketch it will be seen that industrial medicine is the practice of medical supervision, preventive medicine, and public health within the factory; that its effort is to safeguard the health of the employe from the time of his becoming a member of the working force until his discharge; that even when the worker is incapacitated by sickness or by accident, continual contact is maintained with him through the visiting nurse's service: and that upon his recovery suitable work is found to meet the needs of his physical condition. To quote a recent editorial in the *Journal of the American Medical Association*[2],

> "The foremost objectives of industrial medicine are: (1) to fit every person to types and quantities of work according to his ability to perform such work continually without undue impairment, without injury to himself or to his fellow workman and with profit to himself and his employer; (2) to procure and maintain fitness for work through efforts applied to the worker as an individual, to groups of workers, and to the work environment; (3) to educate the worker to a comprehension of the value and significance of physical and mental well-being and, in particular, of personal hygiene and accident prevention; and (4) to reduce all loss of time, absenteeism and short work spans in industry the cause of which may be related in any way to health."

Ever since the World War the general interest in public health has been increasing year by year. The united effort of the people in work for the Red Cross and similar organizations carried over into a deep and compelling interest in the health problems of the community. Whereas, in most communities prior to the World War public health work had been left almost entirely to municipal and state authorities, following the war the surge of interest united small societies and added strength to the local branches of such national organizations as the National Tuberculosis Association. New movements establishing branches of public health not covered by municipal or state work were initiated, societies giving attention to the health of expectant mothers, of infants, and of children of pre-school age were added to the already existing associations such as district nursing and the Y. M. C. A.

In small communities where facilities were poor and the population more scattered, the public health nurse began to appear, giving health instruction through house visits. The interest in hospitals, experimental health centers, and similar public health moves increased. All this activity began at the same time and paralleled the progress of industrial medicine.

Thus if we look at the broad picture of community health in a manufacturing city, we find a number of groups endeavoring to improve the public health. First there are the local and state boards of health, both of which are attempting to provide safe and efficient sanitary conditions and to prevent contagious disease. In the latter work they are assisted by the local school authorities, who maintain medical supervision of school children.

In the second group are the numerous voluntary health agencies already mentioned. These agencies take up the prevention of types of disease not covered by the boards of health.

In the third group are the general and special hospitals serving the community.

In the fourth group are the factories which maintain industrial medical departments. The fifth group consists of the physicians, surgeons, and medical specialists of the community.

The factory medical department is in the strategic position of being in coöperative contact with all of these groups. It is the front line trench of defense for the worker. Here he receives first aid treatment in case of accident or in case of acute sickness. Here he receives examination and advice in minor medical conditions. Here he is advised when he should consult his family physician, a thing he is frequently loth to do because of expense. Here the seriousness of his acute illness is discovered and arrangements made for immediate care either at his home or at the local hospital. It is surprising how many workmen are found to have no family physician. This may be due to lack of personal illness for some time, to a recent change of residence, or to insufficient funds to employ a doctor. Be that as it may, a considerable part of the industrial physician's time is given in advising workers as to the selection of a physician and to the management of their medical problems.

I wish to emphasize at this point the handling of each case on an individual basis. The medical and surgical work carried on in industrial medical departments is similar in methods to that employed in private practice, except that the problems investigated are diagnostic and advisory rather than curative. It is because of the advisory character of the work and the natural limitations of intramural study that the industrial physician finds himself in contact with other diagnostic, preventive, and curative agencies in the community.

To consider a concrete example of the method of handling a public health condition with which we are all familiar, let us consider the management of a case of early pulmonary tuberculosis developing in a worker while in the factory.

The worker comes to the medical department complaining of cough and lassitude. Following the dispensary rule that every case of cough lasting more than a week shall be thoroughly investigated, the worker is given a complete physical examination from head to waist, inclusive. His temperature is taken and he is given a sputum box, thus establishing a contact with the local health department. If positive signs of tuberculosis are found at the examination, the patient is referred at once to his family physi-

cian, and the department in which he works is notified not to allow him to return to work.

If the patient presents questionable physical signs and an x-ray appears necessary, he is sent either to a local roentgenologist or to the general hospital for a series of diagnostic plates.

If the case appears to be one of active tuberculosis and the patient has no family physician and cannot afford one, arrangements are made with the local hospital to care for him until he can be admitted to a state sanatorium. In either case the patient is visited at intervals by the industrial visiting nurse who reports his progress back to the industrial medical department, as well as obtaining advice and possibly relief for the patient's family through the local Tuberculosis Society.

On the patient's discharge, arrested and able to work, a careful examination is made at the factory, its results recorded and the patient assigned to work for which he is fitted. Every effort is made to return him to his original work or to his original earning power if this is possible.

In this sequence it is interesting to note that practically every health group of the community is called upon at some time between the first diagnosis and the final disposition of the case.

Nine years ago, the late Dr. Eugene R. Kelley[3], in a most interesting review of the modern public health movement, divided it into three periods.

> "(1) The Era of Sanitation.
> Roughly from 1850 to 1880.
> This era was principally concerned with environment. Its key word was 'Environment'. Its typical exponent in the public health ranks was the sanitary engineer.
>
> (2) The Era of Infectious Disease Work. It began roughly from 1870 and was in full sway largely overshadowing all other public health concepts for about 30 years. This era was principally concerned with bacteriology. Its key word was 'the germ'. Its typical exponent was the laboratory research worker.
>
> (3) The third Era is just beginning. It may be called the Era of Hygiene. It makes a return to first principles. This era is principally concerned with the human machine, the person. Its key word is 'Education'. Its typical exponent is perhaps the public health nurse."

It is largely because of its educational possibilities that industrial medicine has come to be considered as part of a modern public health program.

As far as I have been able to determine, the idea of periodic physical examinations originated as a result of the development and experience of industrial medical departments in conducting physical examinations of their employes. The idea first elaborated by the Life Extension Institute has spread as a public health and preventive health measure so that it is now being advocated by several of the state medical societies as a field to be developed by private practitioners.

It should here be pointed out that the concentration of large groups of industrial workers within a comparatively small area makes the problem of periodic examinations a relatively easy one. The facility with which an employe may be reached and the short time which elapses before he presents himself at the factory dispensary is ideal for periodic examinations, follow-up work, and similar measures.

From a public health point of view, periodic physical examinations are of special value when they detect beginning disease which may be delayed or arrested by proper management. This applies not only to the examination of the apparently well worker, but also to the examination of the worker who is known to have a physical disability or a chronic disease. The preservation and prolongation of life is becoming one of the more modern movements of progressive public health departments. Thus, special attention is being given to early cardiac disease, diabetes, and cancer, which, if not controlled, lead to prolonged disability and death. Modern public health departments and the health agencies of the community are interested in the prevention of disease at both ends of the age cycle. There is probably no more effective method of control than the thoughtful medical supervision possible in industry. The patient is more willing to seek medical advice when it involves no loss of time and but a few steps from his work, and he therefore consults the industrial medical department more frequently than he will a general hospital or his family physician. In addition to this, his case may be reviewed as frequently as is considered necessary without expense or loss of time to the patient. As groups of similar cases may be followed over periods of years, the opportunity presented to the physician for study of the progress or arrest of these conditions is unique. There are few clinics, or family physicians, who can show continuous health records of their patients for periods of eighteen years, and yet such records are available in at least two Massachusetts industrial medical departments, and taking the country as a whole, many factories have on file medical records exceeding ten years in duration. Thus we find that interesting possibilities exist for the study of groups of specific conditions which are of importance to the health of the community and to social economics.

A short time ago I spoke of the important position given to education in a modern public health program. The U. S. Public Health Service sends out a monthly sheet of information upon some public health matter for distribution through the public press and through factory or similar publications. The majority of the states have some printed form of health publicity published and distributed by the State Board of Health.

The industrial medical department acts as a local health centre for the factory community, publishing educational health matter, which is distributed in different ways. In some cases the information is given in folders which are placed in or with the pay envelopes. In other cases the educational matter appears in the factory newspaper or magazine.

While such educational work in printed form is of value, of far greater value is the health advice and information given by the industrial physician and by the industrial nurse in their personal daily contact with the working force. Those who have not worked in an industrial medical dispensary, seldom realize the number of workers who visit it daily more in search of advice and reassurance than for real medical or surgical care. In a factory employing an average of 2500 workers the number of visits to the dispensary amounts to an average of 100 visits a day. A conscientious medical staff can provide a vast amount of information during a year of such frequent contacts. The information given out by these contacts and by the published folders or articles, finds its way into the home and, added to the health education given to the school child, establishes in the family a rational knowledge of general health matters.

Up to this point we have considered for the most part the public health aspect of the Practice of Industrial Medicine. It is now time to turn to that part of Industrial Medicine called industrial hygiene and see how this is related to Public Health. As I have previously said, industrial hygiene studies and endeavors to control those general factors of the worker's environment which are unfavorable to health. It is interesting to note that this part of industrial medicine was that emphasized in the public health movement in the "Era of Sanitation" with the key word "environment".

The diagnosis and study of the problems of industrial hygiene belongs to the industrial physician, while the actual physical solution of these problems rests with the plant's engineer. The problems involved are those which deal with extraordinary health hazards. It is unnecessary to do more than mention such things as factory lighting, ventilation, sewage and garbage disposal, sanitary toilets and locker rooms, and safe drinking water dispensed at a proper temperature. These are recognized as public health problems in any community. So let us turn to something of more special interest to physicians and consider the problem of dust resulting from a manufacturing process.

Dust may be roughly divided into two classes, organic and inorganic dust. While the inhalation of either type in sufficient quantity is eventually harmful to the worker, the inhalation of great quantities of inorganic dust is definitely dangerous. All the dust produced, however, is not inhalable; that is, the dust particle does not reach the alveolus of the lung unless it is less than ten microns in size, while the great majority of particles inhaled are from 1 to 3 microns in size. The extreme minuteness of such particles can best be appreciated when it is remembered that sizes smaller than 1 micron are only found in colloidal substances. These minute particles are carried from the lining of the lung alveoli to the lymphatic vessels by endothelial wandering cells which appear to be attracted by the foreign bodies. These cells are carried by the lymphatics of the lung to the lymph glands which react to their presence by increasing in size. The cells themselves block up both glands and lymph vessels producing as a result a slow fibrosis.

Thus in the lung of a worker who has been exposed to massive inhalation of inorganic dust for many years there appear first finger-like processes of fibrous tissue radiating from the hilum toward the periphery. As years go on, the amount of this fibrous tissue increases until the greater part of one or both lungs is involved. Such a lung appears to be peculiarly susceptible to secondary infection especially by the tubercle bacillus.

It has been found that the extent and rapidity of the fibrotic process is influenced by the percentage of free silica in the dust, the higher the percentage the more rapid and the more extensive this process. The only effective protection which can be provided the worker is the removal of the fine particles of dust at the point where they are produced. This is usually done by a specially devised suction apparatus attached directly to the machine, though in some cases where the manufacturing process produces great clouds of fine dust particles, the wearing of a helmet somewhat like that in use by divers is necessary. Investigation and dust counts made by the United States Public Health service show that "the upper limit of allowable dustiness can probably be established somewhere between ten and twenty million particles per cubic foot of air. Experimental tests have been conducted to show that exhaust velocity of 1500 feet per minute at the ducts of the ventilating hood serves to keep the dust exposure of the operator below ten million particles per cubic foot of air[4]."

Unless proper protection is provided, working in very dusty trades is accompanied by a high mortality from respiratory disease. The industrial medical service endeavors to protect the worker, first by physical examination and by periodic reëxaminations, second, by periodic x-ray of the chest, third by continual check-up of the dust removing apparatus and by dust counts to check its efficiency.

The prolonged attention given by the U. S. Public Health Service and by other organizations such as life insurance companies, to dust inhalation, joined with the amount of experimental and clinical work being carried on at different medical centers, shows what an important place the dust problem assumes in public health. Industrial hygiene may therefore be

considered a part of public health service, developed to meet the general and special health hazards which are due to factory environment.

Industrial toxicology is frequently classified under the title of Industrial Hygiene. However, it is so important a branch of industrial medicine that I prefer to consider it separately. It seems particularly worthy for special consideration because of its ancient history, the first scientific treatise on the subject (that of Bernado Ramazzini, "De Morbis Artificium Diatriba") having been published in 1700.

Industrial poisons may be divided into those which have been known for many years, such as phosphorus and lead, and those which have been in use for only a short time. Due to marvelous discoveries of chemistry, new complex substances are being put to commercial use each year whose effect upon the human body is frequently unknown. The possible havoc which may be wrought by a toxic product was dramatically shown in the tragedy attending the first experimental use of tetra-ethyl lead in gasoline, and in the cases of late poisoning developing among workers who painted the dials of watches with luminous paint containing a minute quantity of radium.

Kober[5] quotes the Committee of the International Association for Labor Legislation, giving a table in which fifty-three groups of poisons in common use in factories and known to be injurious to workers are listed. It is the duty of the industrial physician to know all chemicals used in the manufacturing processes of his factory and to be prepared not only to prevent poisoning of the workers in departments where known poisonous substances are in use but, as Dr. William T. Wadsworth[6] pointed out ten years ago, to follow closely the action of new substances on the working force. Industrial toxicology is far from a finished subject. Doctor Wadsworth says, "There is only one way, and that is to learn all substances that enter the factory, follow each substance through from the point where it enters to its exit, and note the processes and consider well the impurities that may be found in each: then watch the workers along these paths and especially watch the new men on the job, for they are not likely to have acquired that tolerance which makes serious chronic poisoning possible".

When we remember that Hayhurst[7] has listed about 700 industries and occupations which have health hazards, especially in the way of poisons, it is readily seen that the practice of industrial medicine, wherein lies the only possible prevention of many of these poisons causing disability, or death, is in reality a definite public health service, inasmuch as large groups of workers in many communities may be affected.

In the preceding discussion we have been considering the activities of an industrial medical department in a factory of over 1000 employes. The majority of workers in the United States are employed in organizations of this size, or larger. However, the great mass of factories in the United States employs less than 1000 employes; and in these smaller factories, which in some cases employ only a few workers, medical supervision is much below the standard here outlined. In the National Metal Trades Association membership on March first of this year, the estimated employment was slightly less than 1,250,000 workers. Of this number about 875,000, or 70%, are under medical supervision. The remainder are employed in small shops where the expense precludes the provision of more than first aid.

In 1926 the National Industrial Conference Board investigated the medical care of industrial workers in 499 plants, fourteen of which employed over 10,000 workers, while 99 employed less than 500. The total number of workers covered by medical supervision, complete or partial, in this group was 1,116,562. It is probable that at least two million workers are reached and affected by industrial medicine and that from this point of view, its efforts are of enough magnitude to be a distinct factor in the health of the nation.

Because of the large number of individuals under medical supervision in industrial establishments, records of morbidity and mortality, especially the former, are of distinct interest to the Federal and to the State Board of Health. In several cases the distribution of special diseases such as influenza has been studied through information mailed weekly from the factory medical departments to the State or Federal Health Department. Recognition of the importance to the world of the health problems peculiar to industrial workers is shown by the establishment of the International Labor Office at Geneva of a special section which studies the problems of industrial medicine and is at present publishing an Encyclopedia of Hygiene, Pathology and Social Welfare studied from the point of view of labor, industry and trades. This encyclopedia deals entirely with occupational disease and industrial poisons.

The public health work in Industrial Medicine is carried out by methods quite different from those employed in the Army and in the Navy. In these branches of Government Service complete power is vested in the medical management. In Industrial Medicine public health measures can be carried out only with the assent and coöperation of the employe. The contact with the State Board of Health is entirely coöperative and not obligatory. The effectiveness of the work done is dependent entirely on education and leadership. Although experience has standardized certain methods of procedure as it has in hospitals and in other organizations, each factory conducts its medical work along individual lines, adopting the method which appears to be most practical in that particular case.

Thus, as a measure of preventive surgery, physicians in industry have adopted a standard rou-

tine method of handling lacerated wounds, which has reduced infections to a minimum, less than 1% of such injuries becoming infected if promptly treated. On the other hand, methods of medical supervision, record keeping, visiting nurse service, and other details differ widely, while in many factories experimental and clinical work is done upon hazards peculiar to that industry.

Industrial Medicine in no way suggests state medicine; its public health work is accomplished by the individual work of its staff and by coöperation with public health organizations.

What may be the future of Industrial Medicine? In the first place it should become a recognized branch of practice with definite limitations. It will not be community medicine, nor will it be a service largely devoted to the care of traumatic cases. Its tendency will be to develop more and more along the lines of preventive medicine. Contact with all public health agencies will be fully recognized, and active coöperation will exist between industrial medical departments and the local branches of those agencies.

It is hoped that the same progress which has developed in general hospital services during the last decade will be shown in the next decade of industrial medicine. Thus we may expect larger medical staffs doing more scientific work, approximating in excellence of records and publications the work now being done in high grade hospitals.

It is further to be hoped that a method will be evolved which will enable small factories to provide medical supervision for their employes in as complete a way as it is carried out in the larger organizations.

The initiative toward these advances rests with the leaders in industry, the medical societies, and those organizations, state and local, interested in public health and preventive medicine.

In concluding I would point out that I have purposely omitted any discussion of industrial surgery or of the sociological aspects of Industrial Medicine. What I have endeavored to show is the position to which Industrial Medicine is entitled in any broad public health program.

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PREVENTIVE MEDICINE AND BLINDNESS

The progress of preventive medicine is continually receiving fresh and powerful impetus. It is thanks to preventive medicine that typhus does not spread from one infected country to an entire continent. It is to this science that the doctor owes a predominating position in the work of colonization, and it is his specific duty to protect natives against such diseases as tuberculosis, unknown to them in their uncivilized state, and the colonists against the deadly effects of a tropical climate. In countries which have attained a high standard of culture, preventive medicine is a safeguard against the ravages of smallpox, diphtheria, typhoid, purulent ophthalmia, and, perhaps in the near future against tuberculosis. Its field of action is constantly expanding.

Today, public opinion is being drawn to the problem of blindness. How can human eyesight be saved? It is a matter of common knowledge, but one to which too little thought is given, that there is a belt of countries encircling the world in which the inhabitants are either threatened with blindness or suffering from grave forms of ocular disease; the whole of Northern Africa, including Morocco, Algeria, Tunis and Egypt, the vast expanse of India and the alternately sparsely and densely populated territory of the Chinese Republic are included in this belt. In Western Europe, the leading industrial countries, which are now almost immune from certain diseases as a result of the progress made in preventive medicine, have noted a marked increase in the number of accidents resulting in eye injuries. An American ophthalmologist was no doubt thinking of these countries when he declared that "external injury constitutes the most important cause of blindness through the greater part of life." Among this multitude of unfortunate human beings who have either lost their sight or are threatened with blindness, there are some who could recover their sight if given suitable treatment; there are a far greater number who could be saved from impending blindness. How can this be achieved? This question is answered in the extremely interesting report published by the International Association for the Prevention of Blindness. This document gives figures showing the deplorable amount of blindness in the world and its geographical distribution; in round figures, the blind population of the different countries is given as follows: 500,000 in China, 1,500,000 in India, 76,000 in the United States, 53,000 in Great Britain, 36,000 in Germany, etc. It has been estimated that 95 per cent. of the native population of Egypt suffer from trachoma while 90 per cent. of the school children in Southern Tunis are afflicted with this disease.

REMARKS ON THE PREVENTION OF UTERINE CANCER*

BY P. BROOKE BLAND, M.D.†

INTRODUCTION

IT is generally conceded that cancer of the uterus is the most frequent clinical form of malignant disease arising in women and as a lethal malady in the female it stands in the foremost rank. It constitutes, it is claimed, about one-third of all cases of cancer.

For the sake of comparison and for other reasons, bearing especially on the etiologic aspects of the topic, it may be prudent to point out that from the ages of twenty to forty-four tuberculosis still remains the most frequent mortal disease of womanhood with a death rate of 27,853 yearly in this country.

To me, though I suppose it is generally known, it is exceedingly disquieting to learn that in the same age period the complications of pregnancy together with the accidents of labor rank next in the point of frequency with 18,281 deaths annually, or 7 for every 1,000 live births.

For the eight year period, from 1920 to 1927, the total deaths from tuberculosis of women in the child bearing age totaled 215,720 and the puerperal deaths 109,709.

It is chiefly from the standpoint of casualty that I have referred to the group of disorders mainly accountable for the dissolution of fruitful women or women in the reproductive years. It is not the mortal, however, but quite obviously the morbid sequelae of labor that have to do with the prevention of uterine cancer and which assume in large measure the precursors of uterine oncology of the malignant type.

This observation is substantially supported by clinical study and scientific investigation. First, one must recall that cancer arising in the uterus, like cancer elsewhere, displays a rather characteristic trend to develop in certain well-defined areas. The first, and by far the most frequent, site is that portion of the uterus swinging from the vault of the vagina—the cervix; and the second, far less frequent, that portion of the uterus projecting above the vaginal vault—the body.

The relative frequency of the two sites is about one for the body to five or six for the cervix, although some authors are inclined to believe that corpus carcinoma is much more frequent than hitherto assumed and occurs in the proportion of considerably more than the figures named.

Mahle, in a series of 855 cases of uterine cancer, found a ratio of 1 to 3.4. Cullen reported 25 per cent. in 176 and Graves 22 per cent. in 550 cases. Norris fixes the percentage at from 20 to 25 per cent. In a study of 23,781 patients admitted to the Boston Free Hospital for Women, covering a period of 51 years, from 1876 to 1927, Smith Smithwick and Rogers found that 550 or 2.31 per cent. suffered with cervical and 101 or 0.42 per cent. with body carcinoma, a ratio of something more than 5 to 1. Hence the impressive fact remains that malignant disease of the cervix is infinitely the more frequent.

This cannot possibly be merely a coincidence. There must be a very real underlying factor. Since cancer of the neck of the uterus occurs mainly in married women and more especially in those who have borne children, the far greater frequency of the disease in this region it seems is properly ascribed to parturitional injury with sequential cellular alteration incident thereto. This may be regarded as the most definitely known lesion to precede cervical cancer. It may be looked upon as essentially the exciting or secondary cause of the disease.

It is taught that more than 95 per cent. of the patients who develop malignant neoplasia of the cervix have borne children and that the great majority have had more than one child. In other words, the more labors, the more cervical damage and ultimately more cancer. Looking briefly at the statistical picture regarding this phase of the subject, one finds abundant evidence to confirm this quite generally accepted belief. Farrar, for example, of the Woman's Hospital, New York City, in a study of 300 consecutive case histories, found that 288 or 96 per cent. of the patients had had either premature or full-term labors.

An exceedingly interesting and suggestive feature of this study disclosed that all the labors were difficult and in many instances instrumental. Still more suggestive was the revelation that many of these patients, as expressed in their own language, though "badly torn, were not repaired". In only 9 of the 288 patients were lacerations of the cervix sutured.

One could cite figures almost indefinitely in further support of the rôle played by puerperal trauma in cervical carcinoma. Briefly, as a matter of emphasis and interest, Koblauch, according to the author just quoted, found cancer of the cervix in only 4.6 per cent of nonparous women, Edelberger in only 2.9 per cent. and Kroemer in only 1.77 per cent. Cullen, she states, refers to fifty patients with cervical cancer, forty-nine of whom had given birth to children. More than half of these patients were delivered of full-term babies on five or more occasions.

THE CAUSE OF CERVICAL CANCER

Viewing, then, these figures in the light of etiology, one is justified in assuming that it is

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injuries of the cervix inflicted during child birth, either spontaneous, manual, or instrumental, followed by eversion, erosion and long continued irritation, and culminating finally in cell metaplasia of the endocervix, that form the propitious background for the ultimate development of cervical cancer.

In the uterine body—a section more or less secluded and relatively immune to trauma and irritation—the disease probably owes its origin to cell metaplasia and other factors related in some mysterious inexplicable way to the menopause. It is generally conceded that in this region the disease, while it may occur, is extraordinarily uncommon during the child-bearing age.

It is no longer thought, however, that senility of the tissues is the chief reason for cancer affecting mankind in middle age and in old life. Chronic irritation is regarded as the fundamental cause. It has been demonstrated that mice subjected to long continued irritation by carcinogenic materials, such as tar, for example, will almost invariably develop new growths in about six months, one-sixth of the normal span of life of the mouse. Applied to man this would correspond to from ten to fifteen years.

The foregoing statement is supported by observations made in occupational cancer, because neoplasms do not appear until ten or fifteen years after a victim begins work in a predisposing field. A striking feature with regard to studies made is that it makes little difference whether the individual began the work in early life or in middle age.

Murray, according to an editorial in the March 22 number of the *Journal of the American Medical Association*, states that it is reasonable to argue that what is true of occupational and experimental cancer, in which the nature of chronic irritation that is operative is known, applies, also, to the ordinary forms of cancer in man. If this is true, cancer arising at the age of say forty-five, in the stomach, the breast, or the uterus, owes its origin to a slow continued process which began ten, fifteen or even more years before and not to some event immediately preceding the appearance of the growth.

The period of time that must elapse before cancer develops in mice subjected to carcinogenic materials varies greatly. It may vary from three months to a year or more, corresponding in man to variations from seven to thirty years. Stimulation or irritation must continue for a sufficiently long period of time and the age of the patient is not considered as an important factor. The latter fact has been brought out by recent work done under the Imperial Cancer Research Fund, in London, and reported by the Director, Doctor Murray.

One may say that all in all cancer is the most subtle and etiologically the least understood disease known.

However, in the combat with any given disease, as pointed out by Graves, three factors must be considered: first, the essential or primary cause; second, the exciting or secondary cause; and, third, the cure. Inasmuch as the primary cause of cancer is wholly unknown, it becomes plain that no intelligent or effective means can be applied in that direction.

Reference has just been made to what one may regard as the exciting or secondary cause and it is here that helpful measures can be applied.

PREVENTION

Coming, now, to consider more intimately the special theme of the topic, the prevention of cancer of the uterus, one can perceive that the solution lies, to a very large extent, in the prevention or prompt correction of lesions which may ultimately become cancer. In viewing this proposition in the perspective, the task assumes imposing proportions and at first sight seems almost insurmountable, for one seems justified in concluding that so long as women give birth to children, just so long will cervical injury be sustained with its final culmination in cancer in a certain number of instances. In the light of these circumstances it would appear almost futile to hope for widespread improvement in that direction.

So long as maternity practice in this country —as well as in all others— is largely private home and not institutional practice, just so long will strong support be added to this view. Only under the most unusual auspices is it possible for the physician to render the special general care together with the local surgical attention that puerperal patients, especially primiparous, women require.

Vaginal and perineal injuries may be—though I am by no means certain they always are—repaired successfully in the private home. The procedure is in most instances extremely simple. Infection is seldom seen and hence primary union is generally the rule. Injuries of the cervix, on the other hand, are more or less inaccessible. Besides, they are found in a region not only difficult to manipulate, but one which is exceedingly delicate in its resistance to infection.

Moreover, it is perfectly clear that the environment in most private homes could not possibly lend itself to a high standard of aseptic surgical technic. While it may appear on the surface that the profession has been more or less derelict with regard to the proper care of cervical trauma, probably in the long run the passive attitude assumed has proved the greatest good to the greatest number. But the good is manifestly far from being good enough.

It may be said that, in the main, cancer of the cervix in its finality is the back wash of obstetrics, an expression of incomplete maternity service. In no other department of surgery —for obstetrics is surely a surgical specialty— can one possibly find a parallel in the callous indifference to serious injury—serious in both its

immediate and remote effect—that one observes in midwifery practice.

In order to overcome the predisposing lesions arising in the cervix, one can readily appreciate that the practice of obstetrics must reach a standard far higher than it has attained hitherto. During the past decade the standard in this field has improved considerably, but there is still much to be desired. I feel confident that with the wider adoption of efficient hospital care for maternity patients one can look forward rather optimistically to more zealous and finished supervision of puerperal women, especially with respect to efficient surgical care. Though it may be many years before all midwifery patients will be able to obtain the requisite hospital treatment, I am convinced that the puerperal woman, even though she be delivered in her home, will with each succeeding year receive superior obstetric attention.

TEACHING THE STUDENT PREVENTION

The student graduating today is fundamentally better equipped than ever before. He is taught, and is made to realize, the immediate and remote dangers of cervical injury, whether resulting from spontaneous, manual or instrumental labor. He is made to know that rarely is manual manipulation within the vagina and especially within the cervix necessary during labor. The advantages of rectal examination are pointed out and he acquires the technic of applying it in practice. He is taught that seldom, if ever, is the cervix seriously injured in a perfectly normal labor. The reprehensible practice of manually dilating the cervix—as so often expressed, to help the patient—is common knowledge to him and will be absolutely cast aside in his work. He is familiar with the dictum that a cervix free of injury—a sound, healthy cervix—is the best possible defense against malignant degeneration and invasion.

Moreover, one must recall that in most states the graduate student is required to spend at least one year in a class "A" hospital—with a maternity department—adequately equipped to meet the requirements of the state. It is here that the student becomes a postgraduate member of the department. Here he is given the opportunity to study and personally deliver anywhere from fifty to one hundred maternity patients, not to say one word regarding the knowledge he gathers from his weeks of association with skilled accoucheurs.

There is still another feature of importance in modern obstetric work. More men are attracted to the specialty than ever before and hence more and more are devoting their time exclusively to its practice. It will be interesting to observe what influence this will have in the uterine cancer situation, say at the end of the present decade.

It is obviously the preventive side of the cancer problem which needs, and is fortunately receiving, more attention today. With this phase of the specialty—for obstetrics is being looked upon as an exceedingly important department of preventive medicine—inculcated in the mind of the student, better work must inevitably follow.

For the general practitioner the specialist has a duty to perform in teaching him the transcendent importance of prevention. Heretofore we wandered far astray in this respect. *Too much stress was placed on the early diagnosis of uterine cancer* and not enough stress on the prevention, early recognition and prompt correction of uterine lesions which might become cancer. It is to the latter feature of the problem that scientific efforts must be directed chiefly.

To portray the superlative value of cervical therapeutics as a means of prevention, Pemberton, in a study of 5,962 patients upon whom trachelorrhaphy, cervical amputation, or cauterization had been performed, reports that only five developed carcinoma.

Smith and his associates, in a study of 3,650 patients upon whom cervical repair had been performed, report that only six developed carcinoma subsequently and in a critical analysis of 498 patients suffering with cervical cancer, they state that 486, though probably suffering with parturitional cervical damage, had never been operated upon. They, also, refer to 1,150 patients in whom the cervix was cauterized. Not one of these individuals developed carcinoma thereafter.

These observations depict most dramatically the benefits of the application of preventive surgery to diseased cervices. The figures cited by Ralph R. Huggins are equally as dramatic. He reports 2,985 cases of chronic cervical disease treated by cauterization or excision by the endothermic knife without a single case of cancer developing thereafter.

Thus it can readily be discerned that a paper dealing with the prevention of uterine cancer would be wholly incomplete if it failed to give emphatic utterance to the prevention of essentially the forerunner of malignancy, an injured and diseased cervix.

The former practice of routinely, repeatedly and ofttimes haphazardly submitting all patients to vaginal examination during labor, with the irresistible tendency to dilate digitally, stretch and slip the attenuated cervix over the presenting part and incidentally rip the structure thereby, was unquestionably responsible for an inestimable degree of cervical damage with its train of immeasurable sequelae.

It is not possible to even guess how much this wholly unnatural practice has cost in morbidity and mortality, both immediate and remote. The practice not only has been, but unhappily still is, a fruitful source of trouble. With less vaginal manipulation, both manual and implemental, so poignantly expounded in the teaching of obstetrics today, the incidence of injuries of the cervix should gradually be reduced tremendously.

From the foregoing one seems almost justified

in claiming that the solution of the problem, so far as prevention is concerned, rests more with the obstetrician than with the gynecologist. In the past, I fear he has fallen somewhat short in this respect.

TIME OF REPAIR

The repair of cervical lacerations has customarily been divided as regards time into: primary, intermediate and secondary. In discussing this feature I shall assume a rather dogmatic attitude, because it is my custom to advocate and practice the primary operation. All things considered, this appeals to me as the preferential plan.

I never could see any advantage in deferring interference until the second, third or fourth day postpartum and then adopt the intermediate operation. In no other portion of the human body would irregular, gaping wounds be allowed to go uncorrected for a like period. Should not the same surgical principle apply to a wounded cervix? Nothing is gained by delay. While in most instances cancer does not develop in cervices recently injured, no one can foretell what cellular alteration of a predisposing nature may take place during even a few months of endocervical irritation with infection.

In the process of wound repair, very definite and probably more or less change in the epithelium must occur. At best, healing is drawn out a period of many days or weeks. With bacterial intrusion, it may be carried over a period of many months and may not take place at all. Healing, it has been observed, has taken place as early as the fifth day, but under the most favorable circumstances the average is about ten days.

If the condition of the patient, her environment, or other factors are not favorable to immediate correction, then I believe it wise to postpone operation for four or six months, or in other words until complete cicatrization has taken place. Corrective surgery applied at this time is infinitely more refined and complete. With respect to secondary repair, I think one's action should be governed by the presence of the tear itself. It should be corrected forthwith.

I am not a partisan to the rather widespread teaching that operation should be deferred until the family unit is complete. This teaching is based on the rather erroneous assumption that a repaired cervix cannot withstand the stress of subsequent labor and must inevitably give way. From rather an extensive experience in work of this nature, I have not observed serious damage to a repaired cervix in future labor, provided it terminated normally.

BIOPSY

Passing on to an item which should be included in the category of prevention, I find that biopsy must occupy quite a conspicuous place. By the practice of tissue excision for microscopic analysis, I do not mean that one is able to recognize any tissue change that could be regarded as characteristically precancerous.

Archibald Leitch claims there are no signs or histologic characteristics that enable the pathologist to predict future malignant degeneration. In his experiments this investigator used materials which almost inevitably induced cancer, but the examination of local tissues of the animals which died or were killed before tumor formation arose showed nothing that could be called a definite precancerous state. The profound change which must exist in the responsive cell, he states, does not express itself in anatomical alteration.

The gross appearance of a diseased cervix may be suggestive of carcinoma, but in doubtful cases only microscopic scrutiny can distinguish inflammatory from malignant tissue. It is in these cases that one should practice test excision for confirmation.

Cooke epitomizes the value of this method of examination when he says the histologic study of biopsy specimens will, even with our present knowledge, afford a sounder basis for the treatment of cervical lesions, first, by providing a means for the ready recognition of malignant conditions and, second, by ruling out others of a suspicious nature.

Pemberton, in a study of 669 cases of cervical carcinoma, reports that in 2.39 per cent. the diagnosis was based on microscopic study. Here it might be of interest to mention that this author, in accord with many other recent writers, claims that he was unable to observe any harm resulting from the procedure.

Hence biopsy does not, as was at one time taught, favor the dissemination of malignant disease. I recall most vividly that some ten years ago I was taken severely to task for having the temerity to advocate test excision in a paper I presented at a meeting of one of our local societies.

It has long been known that lymphatic extension of uterine cancer is exceedingly tardy and probably is found in less than one-third of the patients who succumb to the disease. This is readily understood on recalling the physical character of the lesion, a lesion tormenting and figuratively choking itself to death with its concrete-like base and its vascular channels more or less hermetically plugged.

Under such circumstances one can scarcely conceive of any prejudicial effect resulting from a procedure so simple as test-excision or test curettement, and more especially since the surfaces left are usually sealed by cauterization.

Even no less an authority than Crile urges strongly against simple test curettage, because if cancer is present, he says, it will tend to disperse and disseminate the malignant cells. The consensus of opinion is wholly against this view.

Norris is an ardent champion of exploratory curettage and claims that an accurate histologic

diagnosis can be made of nearly one hundred per cent. of the specimens thus examined.

Test curettement is about the only recourse at one's disposal to establish a diagnosis of endometrial or body carcinoma. As a means of governance in adopting curative surgery, it should be instituted immediately in all patients displaying abnormal uterine symptoms irrespective of age, but especially in those approaching, in, or after the menopausal years. In this way only is one able to recognize the disorder in its early stage and apply measures for its permanent eradication.

In discussing the preventive feature of corpus carcinoma, one must call to mind the etiologic rôle possibly played by uterine myomas and endometrial polyps.

In 333 cases of corpus cancer studied by Stacy, in the Mayo Clinic, fibroids were found in 124 or 37.23 per cent. of instances. In 12 patients (3.6 per cent.) myomectomy had been performed previously. Polyps of the endometrium were observed in 7 of 5 per cent. of the patients. In some instances the polyps themselves were the seat of malignant degeneration, while in others their presence as a source of irritation seemed to be etiologically responsible for carcinomatous development.

EDUCATION AND PROMOTION

Finally, no discussion of the prevention of uterine cancer would be anywhere near complete without some word respecting the education of the public and from the numerous organizations, both lay and scientific, scattered throughout the world, educational propaganda appears to be looked upon as the most potent preventive medium at hand.

Teaching the people what they should know with respect to the prevention of cancer is extremely important, but just how education can be made a really effective agency of prevention is beyond my power to explain. Education has accomplished phenomenal results in certain conditions, notably tuberculosis; but cancer, unfortunately, is not amenable to similar means of prevention. From recent reports one gathers the impression that the educational campaigns have seemingly not accomplished the results hoped for. Cancer, according to Hoffman, continues to increase. The gospel of "genital health," however, must be expounded and made to reach the people.

The systematic examination of all women once, or preferably twice, yearly, if such a thing were feasible, during the cancer years would unquestionably prove one of the most effective means of prevention. Women should be taught not only to consult the physician when they think they are ill, but when they feel certain they are well. This, as Miller aptly points out, is a sort of insurance against evil.

The adverse criticism one occasionally hears concerning educational campaigns against cancer lacks justification. The assumption that cancer propaganda may give rise to cancer phobia is not founded on facts. All in all, by presenting the menace of cancer to the public we are not, as Moynihan so tritely says, scaring the people to death, but literally frightening them into life.

PSYCHOTHERAPY FOR ALCOHOLICS*

BY RICHARD R. PEABODY†

OUR first consideration is to determine, as nearly as possible, what we mean by an "alcoholic" as distinguished from a temperate or even hard drinker, and then to select from among the former group those with whom we have a right to expect satisfactory results from treatment. In that wide latitude between moderation and dipsomania where, for practical working purposes, shall we draw the dividing line which separates dissipation from chronic alcoholism? It seems to me that this somewhat arbitrary distinction should be made at the point where drinking does not cease with the occasion at which it originated, but, on the contrary, is resumed on the following morning and pursued until drunkenness again results. This type of drinker, once he has tasted alcohol, does not stop until he has been forcibly restrained or until his prolonged excesses have temporarily exhausted him. There are people whose behavior, during what should be normal periods of drinking, is so extremely anti-social that their problem is often more serious than that of many inebriates, but they are not, in my estimation, genuine alcoholics, though they may respond to similar methods of treatment.

From the alcoholics as a class we can eliminate certain groups as unfitted for treatment. One consists of people who are psychotic. Another is comprised of those who do not sincerely wish to help themselves. A third group, with which partial success only may be expected, includes those who are constitutional inferiors or psychopathic personalities. I realize that these designations are not in very good repute, but they serve to describe a type of individual who has little or no moral stamina, who, while not psychotic, is, and always has been, extremely neurotic even before alcoholic indulgence set in.

*Condensation of an article entitled "Psychotherapeutic Procedure in the Treatment of Chronic Alcoholism", read before the Harvard Psychological Society, the Boston Society of Psychiatry and Neurology, and published in the January, 1930, issue of *Mental Hygiene, N. Y.*, for which helpful suggestions were received from Mr. Courtenay Baylor, Dr. G. C. Caner, Dr. H. A. Murray, Dr. M. W. Peck, and the late Dr. Morton Prince.

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TREATMENT

Of what does the treatment consist? First, the patient is shown that his problem is thoroughly understood and that he is not going to be scolded or moralized with in the conventional sense, two amateur approaches to the situation which are as useless as they are justifiable. He is then told that the work entailed in overcoming his habit is a serious undertaking which requires a sustained mature effort. As habits of many years' standing cannot be broken up in a month or two, a concentrated effort of at least a year, and possibly longer, is expected of him. Furthermore, if he expects to be shown how to "drink like a gentleman", he must go elsewhere for his instruction. In other words, having once become an alcoholic, he has degenerated from the class which uses alcohol as a social stimulant to that which abuses it as a narcotic. Such being the case, he can never again expect to drink moderately. Alcohol has permanently unsettled a nervous system which, through inheritance and early environment, was never adapted to withstand artificial stimulants and depressants. It is pointed out to him that complete surrender to this situation is difficult, for the misplaced pride which insists on trying to use alcohol as a beverage reaches far into the unconscious. However, until this surrender is made, constructive work is impossible.

The patient then receives a thorough analysis of his past and present life. The unconscious mind is not explored, but he is told of its existence as a means of explaining certain motivations behind his irrational conduct. His desires and future prospects are discussed at length. Such readjustments to his environment as are feasible are recommended, but he is assured that no one ever recovered from his habit under ideal conditions, and that such circumstances as he cannot change must be faced courageously. He must learn to adapt himself to his surroundings through an inner poise acquired through knowledge and training rather than by means of an artificial medium. He is encouraged to talk of his problems freely as a method of relieving his nervous tension through expression, in contrast to what might be considered the suppression tactics employed in a large part of the treatment. He is shown that he drinks for two reasons,—first, because he has been fixated in, or has regressed to, a childish state wherein he is too naïvely amused and from which, as a mature man, he should be anxious to extricate himself; secondly, that he wishes to relieve a nervous tension (c.f. Courtenay Baylor' *Remaking a Man*) which has slowly or rapidly accumulated through his fear of life, and that this second reason is the real impelling force which makes him drink continuously against his better judgment. There is, of course, a fundamental relationship between these reasons, but it is not necessary to explain them to the patient unless he has become unusually interested in abnormal psychology.

The alcoholic readily admits that he can eliminate the immature pleasure craving as a cause of his inebriety. Furthermore, as soon as he recognizes that the impulse to drink is a symbolic expression of nervous tension he is almost always in agreement that its elimination is the main objective of the work. In other words, the tension is the real cause of his habit, so far as the conscious mind is concerned. When it is absent, he is not disposed to drink. From the point of view of abnormal psychology, it is, of course, readily understood that this nervous tension is by no means a first cause; that back of it lies inferiority, sex, self-preservation,—a combination of instinctive purposes striving towards some real or fictitious goal.. It has not seemed necessary, however, to uncover the conflicts repressed in the unconscious in order to rid the drunkard of his habit.

To relieve this undesirable state of mind, as well as to put constructive ideas in the unconscious, hypnoidal suggestion is given the patient after he has been put in a light state of abstraction but total amnesia is not sought or desired. This suggestion strives to be as positive as possible. The patient is told that he will be more calm and relaxed and that from this calmness and relaxation will come a poise and peace of mind which will enable him to translate his sensible theories into equally sensible and consistent actions. The alcoholic craving is referred to as passing away, and it is suggested that he no longer wishes to poison his nervous system with something that he has already proved to his own satisfaction he cannot stand. On the whole, however, alcohol is mentioned as briefly as possible for fear of the adverse effect of negative suggestion. A preliminary description of the psychological principles involved in this treatment is given the patient in order that he may not have the usual layman's fear of hypnotism. He is then directed to practice auto-suggestion before going to sleep at night. This part of the treatment I consider extremely important in dealing with alcoholics,—all out of proportion to the time that it takes.

Perhaps the most essential element in the work consists in the control and direction of the conscious thought processes. A person literally thinks himself out of his habit, for in the long run sheer will power, no matter how strong, is relatively impotent against misdirected thinking. Day dreaming—past, present, and future —about the "joys" of drinking must be avoided at all costs as it is certain to result in action sooner or later. The alcoholic is not asked to repress the problem, but he must consider it as it actually is, and not as it may have been long ago or as he wishes it might be now. What his friends can drink is of no importance to him as he is psychologically in a different category and will always remain so.

As a means of reintegrating a demoralized person as rapidly as possible (provided they are not nervously exhausted), nothing is as helpful as a daily schedule, made out by the patient himself, and then rigidly adhered to, unless common sense should make such adherence illogical. But he must be absolutely honest with himself and carefully distinguish between legitimate reasons for changing his schedule and rationalizations leading to the breaking of it. The schedule prevents idleness, makes the patient conscious that he is doing something concrete about his condition, and, most important of all, develops, through many small acts, an ability to sustain constructive conduct. The judgment of the alcoholic is rarely at fault, but, as he is a specialist at avoiding life, his morale for the execution of this judgment is often well-nigh atrophied.

Books, such as William James' monograph on *Habit*, Arnold Bennett's *Human Machine*, and Coster's *Psychoanalysis for Normal People*, are recommended for home reading, with the instruction that excerpts that appeal to the patient are to be copied into a notebook. These notations are the basis of my ideas pertaining to the elimination of the alcohol habit and the formation of constructive ones. These are written out on some fifty separate sheets, one or two of which are handed to him at each visit.

If the patient has reason to believe that there is anything wrong with his physical condition, he receives an examination by a competent physician in order that the mind may receive the coöperation of as healthy a body as possible.

ADDITIONAL HELPFUL SUGGESTIONS

As the limits of this article permit only a restricted discussion of the subject, I shall conclude it with the addition of a few ideas which are of help in making the patient understand his problem.

Excessive drinking is, obviously, an emotional procedure and so the alcoholic must be on guard against one emotion inducing another, i.e., drink. Strange as it may seem, the pleasant emotions are as dangerous as the unpleasant. The alcoholic has to learn to withstand success with the same fortitude that he requires in facing misfortune. His equilibrium is so unstable that when he is emotionally stimulated, regardless of the quality of the stimulus, he seems to become fearful of life and is therefore tempted to seek refuge in a "normal" narcotic to restore his balance. He must, therefore, be on constant guard that a natural and perhaps desirable emotional state does not take the place of the initial drink.

Not infrequently a sincere patient will suffer a relapse shortly after he has bravely withstood a strong temptation. This always mystifies him. The reason is that he is unconsciously more fatigued than he realized by the resistance that he has put up. This, combined with the concentrated alcoholic suggestion acquired in enduring soberly an alcoholic occasion, often upsets him after the incident itself is entirely over. He must be conscious at all times of the mental processes contingent upon the attending of such events. If his intelligence and positive suggestive powers cannot nullify the emotional exposure, he must avoid them until his new habits have had sufficient time to crystallize.

The alcoholic must be made to understand that when the work has been satisfactorily completed, he will have accomplished much more than the elimination of drink. In the last analysis, no matter how necessary and praiseworthy this elimination may be, it is purely a negative performance. The fire must be put out first, but the building must then be reconstructed. It is this reconstruction of personality, with attending contentment and efficiency, that eventually brings satisfaction, and not the sterile performance of merely avoiding alcoholic indulgence.

One "super reason" that inebriates are apt to proffer for their failure in life is that of inheritance. They justify their conduct at the expense of their parents. Now parents are responsible, in the overwhelming majority of cases, for nervous systems that cannot withstand alcohol, either through inheritance or through example and training, i.e., environment. I have seen it proved too often, however, that parents have nothing to do with the "necessity" for the continued abuse of alcohol to give inheritance more weight than any other excuse, once the patient has made up his mind to stop.

A man must not use alcohol as a means of forcing himself into an environment that is distasteful to him when sober. Of course, unless he is a pathological recluse with paranoid tendencies, he likes almost everything and everybody when drunk, and as a frequent result of this hyper-stimulation, has very little use for anything when sober. In him somewhere is a genuine discrimination, a taste for something worth-while. When this interest is unearthed, even if it is restricted to one single hobby, it is obviously productive of a more permanent and contented state of mind than superficial and unintelligent alcoholic enthusiasms. The alcoholic is trying to extravert himself through his habit. Therefore some substitute form of expression to which the libido (as the word is used by Jung, rather than Freud) can attach itself must be developed if it is possible to do so. This point is not given the space it deserves because of its obviousness.

CONCLUSIONS

In conclusion it may be said that, given a sincere and intelligent person who was reasonably integrated (even if of marked nervous temperament) before alcohol demoralized him, the prognosis is good, provided time enough is given

to the treatment. But even under the best conditions satisfactory results are only obtained through hard, painstaking work, so that unless much effort is to be wasted, candidates for treatment should be selected in the beginning with a certain amount of discrimination.

AN ADEQUATE COMMUNITY PROGRAM FOR THE CARE OF THE FEEBLEMINDED

BY BENJAMIN W. BAKER, M.D.*

LIKE such topics as the origin of man, the tariff and religion, the subject of feeblemindedness presents many phases and is highly controversial. Causes, numbers, degrees, kinds, ages, care, training, parole, intelligence, emotionality, adjustability, prevention, sociology, economics and environment spread out before us in an ever-enlarging panorama tinted by opinion and experience, but illuminated with only a painfully accumulated modicum of facts. The various views of this subject might be likened to the differences in the aspect of a mountain when looked at from the different points of the compass, with varying light and shadow at sunrise and sunset.

Mental deficiency is a controversial subject because the matter under consideration is not uniform but multiform. It pertains to human life and there is a lack of that definite knowledge which tends to simplify all subjects.

EARLY AND RECENT VIEWS

Our earliest methods for the training of the mentally deficient were developed in France. This development was inadvertently the result of controversy. The physiological discussion of the times lead Jean Itard of Paris to work five years with the celebrated Savage of Aveyron, not for the purpose of caring for the feebleminded, but to determine whether ideation is innate or produced only by sensory stimuli.

The first public attention which the mentally deficient received in America, and the primary objective of the early superintendents of state schools, such as Seguin, the Wilburs, Kerlin, Doren, Knight and Carson, were directed toward the improvement of the mentally deficient by physiological education. The next view regarding the mentally deficient to be emphasized and receive popular consideration was that of life segregation of the mentally deficient because this class was held largely responsible for crime, pauperism, prostitution and illegitimacy. This attitude was supported by the publication of family hereditary studies, tending to prove mental deficiency to be almost entirely a matter of hereditary transmission. Later came the intelligence tests, first proclaimed to be absolutely authoritative, a little later to be condemned by some as absolutely unreliable.

From a wholesale condemnation of the mentally deficient the tide has turned in the opposite direction. These idol-breakers and members of that ilk, whose chief claim to glory lies in the disproving of the obvious, now spend much time in eulogizing the mentally deficient. These persons claim that the mentally deficient are numerous only because our educational system is faulty, that heredity is an old-fashioned idea and that favorable environment corrects all mental deficiency. These earnest workers for the good of mankind fatuously declare that the world needs the moron.

PATHOLOGY

It is strange indeed that biology and pathology, which might be expected to yield the greatest contribution to our knowledge of this subject, have received the least attention. Very little pathological research has been done on mental deficiency. This work has largely been accomplished by a very few. The work of D. M. Bourneville of France is the most extensive. A. W. Wilmarth at Faribault, Minnesota, did pathological studies on the brains of 100 mentally deficient. In the Waverley Researches by Walter E. Fernald, E. E. Southard and Annie Taft, some information was gained. They found disease and defect of three or more glands in 75% of the 100 cases investigated. Bourneville and Wilmarth in their investigations reported the following findings:

Various forms of non-development of the brain
Various forms of degenerative change of nerve or vascular tissue
Diffuse sclerotic changes
Tuberous sclerosis
Skull hypertrophy
Hydrocephalus
Old meningitis
General cerebral atrophy
Demi-microcephalus
Over-weight brains with large and simple convolutions
Infantile hemorrhage
Angioma of vessels of brain
Glioma with sclerosis
Porencephaly.

Since these investigations were made our knowledge of encephalitis lethargica, injury to the head at birth, infantile paralysis, all contribute to the pathology of mental deficiency. We are told that the brain cells appear in conformation during the fourth and fifth months of intrauterine life, that in those embryos which

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are to become mentally deficient persons the brain cells are fewer in number, and those wanting can never afterwards be supplied; not only are the brain cells fewer in number but poorer in quality, smaller in size and less richly supplied with interconnecting nerve fibers. If these pathological findings are to be credited as realities in so far as they go, they should not be ignored in our reasonings and our dealings with the problem of mental deficiency.

Gradually expanding experience and slowly accumulating knowledge have caused us to quash a large part of the indictment of crime against the mentally deficient, to regard heredity as important but as less supreme in importance than formerly; while the intelligence tests are now regarded as faulty but the best individual criterion we possess for determining levels of intelligence. Within the last decade we have learned that some of the mentally deficient are socially and economically adaptable and that some are not. In spite of all experiments, experience and controversy, the mentally deficient are with us in large numbers as a twentieth century problem, and the social, spiritual and intellectual standards of any state may be gauged by its means and methods of dealing with its diseased, defective and dependent members.

CENSUS

To meet any problem intelligently the first essential is a knowledge of the origins, quantity and the quality of that problem, yet objections to a census of all the uneared-for feebleminded have at times been raised on the ground that it is useless to look further for mentally deficient when we already know we have more than we can properly care for. Such objectors fail to realize the basic importance of science and statistics in relation to our everyday life and national existence. Statistics are now being compiled and used by industrial and commercial corporations, banking houses and trust companies, stock exchanges and bond houses, public utility corporations and life insurance companies. The popularity and success of professional baseball depends in very large measure on statistical work. Social and institution-statistics in comparison show a decided lack of development, and as yet no state has made a complete census of all its uneared-for feebleminded. Such a census presents difficulties. Definite standards of mental defect and methods of diagnosis would need to be accepted, and examiners qualified; some central authority designated to compile and keep the findings. In England the law requires all this of the educational authorities. With the present school system throughout the United States all children come under the school authorities. Furthermore, nothing has called attention to the backward pupil like the graded school.

I see no reason why school psychologists and psychiatrists would not be a valuable aid to the school department. A few good experienced men or women who could give full time to the examination of backward children coming to the special attention of the teachers, principals and school superintendents would annually cover a considerable school territory.

All public schools keep a record of each pupil's attainments. The teacher recognizes the chronic failure. Many school authorities are at present capable of using intelligence tests, and the group tests could be used as an aid in identification of the children needing the attention of the school psychologist. No child should be definitely registered as mentally deficient excepting by a careful and competent examiner.

Statistics gathered in this way from year to year should be added to and amplified with the names and histories of all those examined in the juvenile courts and public clinics. If coöperation could be obtained they might also be supplemented by private clinics and examinations.

The location of this record would depend on the administrative construction of the state. It might well be kept in a special department or sub-department for the mentally deficient, or it might be kept with the vital statistics by the Board of Health. These statistics should be under the care of a competent statistician who would keep the records corrected by the reports of commitments to institutions, assignment to special classes, home care, marriage, death or removal from the state. If thoroughly made and carefully kept, in the course of ten or fifteen years any state maintaining this statistical machinery would have not only a census of all her mentally deficient but an invaluable storehouse of knowledge which would be a real guide to educators, boards of control, trustees, institutions, social agencies and legislative bodies.

PREVENTION

Our institutions and agencies are now dealing with end results. They are striving to build large enough and to create organization with which to take care of the wreckage. Heretofore community programs relating to the mentally deficient have dealt largely with the matter of care, few states have sufficiently stressed a program of prevention.

The most distinguishing characteristic of man is his brain. If it is true that the head end of man is the most recent in its structural modifications and its increase in size is due to the growth of the brain in recent centuries, in this there may be some biological relationship to mental deficiency. We know that when compared with the lower ranges of the biological scale the baby is born relatively younger and the brain relatively much less mature than that of many animals. The brain of the guinea pig is fairly mature at birth. The young of many of our larger vertebrates can run at the end of a week, while a baby can take his first step only at about the

fifty-second week. The disproportionate size of the brain at birth and its immaturity render the young of the human race helpless and dependent for a longer period than other living creatures.

It is generally acknowledged that those brain endowments and pathological changes, the manifestations of which are known to us as mental deficiency, occur in many instances before birth, and in the majority of cases before the end of the fifth year. Many good authorities admit 50% or more of mental deficiency due to hereditary transmission yet no one knows what that defect is or how it is transmitted. We are wanting in knowledge as to why some genes are abnormal and how the mores are transmitted from one generation to another. We do know that the failure of development in a normal way occurs some time between the union of the parent cells and the birth of the child. We surmise that the deficiency occurs through the chromosomes, the deleterious effect of some agency acting on the embryo before placental implantation or through the placenta subsequently. Inasmuch as defect and disease in vegetables and animals and in the human race of which we possess definite knowledge are known to be due either to traumatisms or toxins, we may at least deductively assume that feeblemindedness is due to the remote or recent action of similar agencies. We have seen the effects of traumatisms and toxins in the production of secondary amentia and dementia. Is it not possible that these results are produced by similar agencies acting on the human organism at different periods of the life cycle? For many years the medical profession confined a tuberculosis patient to bed in a room with closed windows that he might die without catching cold. This attitude was not changed until the bacillus of tuberculosis was found. With a scientific knowledge of the cause the attitude of the entire world was changed toward tuberculosis and by intelligent treatment the ravages of this disease have been checked.

When every state has a census of its mentally deficient and when we know the underlying causes in the various kinds of mental deficiency we can proceed beyond the stage of caring for the end results and administering to the wreckage.

RESEARCH

One of the most needed features of any well-rounded community program for the welfare of the mentally deficient is the research laboratory. This might be located differently in the various states in accordance with opportunity. It could properly be operated in connection with a state school for the feebleminded. It might be a part of a medical college. To such laboratory or laboratories should be contributed subject matter and material from other state institutions and all other available sources. As an aid to this laboratory there should be a research committee made up of the most intelligent and scientific men and women in the state. The director of this laboratory and his assistants should be selected with great care and subsidized for life. It is true that some of the world's greatest accomplishments have been made by men who died young. It is also true that one reason for a lack of success in research work is the failure of continuous effort. A good research worker is a very unusual individual and his tenure of office should be made as nearly continuous as possible. To the workers in scientific laboratories we must properly attribute very much of the mechanical, chemical and commercial prosperity of the world. It is indeed strange that when the American Telephone and its subsidiaries are maintaining 1500 laboratory men, when Dupont, General Motors and General Electric are maintaining many more on material and mechanical work, wealthy states and wealthier nations cannot realize the serious necessity of supporting a few scientists to search for the cause of an appealing and pathetic human affliction.

PUBLICITY

Outside of knowing the cause and scientific reasons for mental deficiency nothing could be more productive of widespread results for their benefit than the possession of this knowledge by the public. I would add to the research department an information bureau or publicity department. We already possess much information which would be of great benefit if it could be given to every home. The present limit of the average state's legally provided publicity is expressed in an annual or biennial publication by an institution or department, cut to a statistical skeleton for economy's sake and of little interest to the general public. Other information to the public must now emanate gratuitously from the personnel of state departments and state institutions. The grateful reception by the public of such information in the past does not justify one in saying that the giver of such information is in a somewhat prejudicial position. Such information could, however, be supplied more freely and quite as becomingly by an approved and more impersonal source.

In such a sphere as a collector and distributor of information the National Committee of Mental Hygiene has acted with great public benefit. The inclusion in a community program of a publicity organization apart from an institution may sound like the creation of a radical imagination but it should be remembered that the feebleminded baby can never have the mental ability to advocate his own cause. It is possible for a brilliant adult to recover from insanity and write a book on a "mind that found itself" but one cannot imagine an idiot, imbecile or a moron publishing a book on a "mind that never found itself". Mental deficiency comes with babyhood; the parents are bowed with sorrow, are willing to cover up their misfortune and their child's deficiency. Mental deficiency is not acutely pain-

ful. The mentally deficient have not the power of popular appeal like the deaf, the dumb and the crippled. Mental deficiency does not have the nature of an emergency; it is not news. I think it no exaggeration to say that in the majority of states not over 60% of the population knows that there is a state school for the mentally deficient.

The newspapers have been gradually showing more intelligent handling of this subject but if mental deficiency had a popular appeal or if it were news, our papers would render valuable service. A consignment of parrots from a tropical country causes a few cases of psittacosis and through the aid of the newspapers in six weeks all the people of the United States know more about psittacosis than they have acquired about mental deficiency in the last sixty years. When the mentally deficient person is isolated from the community his existence is lost sight of by all but his immediate family and not infrequently by the family itself.

If the wealthy people of whom there are many in every state knew the opportunities of benefit to the human race possible through scientific investigation of this subject, I believe some money would be given to the cause of humanity which now goes for airplane marathons, Nobel Prizes, bird sanctuaries and dog hospitals, as commendable as those objects may be.

MARRIAGE LAWS

From the Magna Charta to the present day nothing has been more esteemed by us than liberty. Our constitution assumes all men to be born free and equal and it was Charles Sumner of Massachusetts who declared equality of rights to be the first of rights.

These reasonings and desires have no doubt operated to prevent the curtailment of the liberties of the mentally deficient. They are not as a rule denied the exercise of their rights of suffrage, of jury duty or of marriage in many states; yet it is a well-known fact that the average mentally deficient person makes a very inadequate parent, being both socially and economically inadequate; undoubtedly the marriage of the mentally deficient increases the number of divorces, desertions and orphans, and it increases the number of mentally deficient in proportion to the bad heredity of the parents.

Twenty-seven states and the District of Columbia have marriage laws which prohibit the marriage of mentally deficient persons. Thirteen states have marriage laws which specify mental deficiency as a reason for voiding marriage. Letters directed to the Board of Health of each of these states gave very imperfect returns because the Board of Health in most states keeps only the record of marriages performed; the record of licenses, marriages annulled and appealed being kept at each county if at all. A summary of replies received from thirty-three states and the District of Columbia is as follows:

17	states	No record at State Board of Health,—might be found by applying to offices of county or local authorities.
9	"	No record and do not know where this information can be found.
2	"	None prevented or nullified.
1	"	3 prevented—0 voided.
1	"	2 annulled—no record of preventions.
1	"	2 prevented—0 voided.
1	"	1 prevented after examination.
1	(D. C.)	No statistics kept, number negligible.

The legal view in nearly every state considers marriage a contract voidable if either party can be shown to have been unable, prior to the contract, to fulfill after marriage the normal and usually expected requirements of such contract. It has been shown that unless the law provides some method of deduction and decision as to the mental condition of persons applying for marriage licenses the law is ignored. Experience has demonstrated that it is unwise to put any unnecessary restrictions on marriage and the prevention of the marriage of the mentally deficient should be exercised with caution.

It would, however, be entirely possible and desirable for the state having a complete list of certified mentally deficient children together with the family records of each child, to furnish to each city clerk or person authorized to issue marriage licenses a copy of this list for consultation before issuing a license, otherwise city clerks should be required to consult the statistician having such list.

If on receipt of application for license the name of the applicant or applicants are found on the list of certified feebleminded the city clerk should deny the marriage license, but the applicants should be given opportunity of appeal for qualifying or disqualifying examination before an impartial board of examiners.

STERILIZATION

Many hundred years ago castration was done to create eunuchs for guard duty in harems and to produce soprano voices for cathedral choirs. It was later resorted to in the United States as a punitive measure for rapists and similar criminals. Nowhere in the United States is castration approved of today.

Sterilization as a health measure is done in any general hospital. Legal sterilization to prevent reproduction of mental deficiency and disease is a health measure. It was first legalized in the United States in Indiana in 1907. Washington, California and Connecticut followed the example of Indiana and enacted sterilization laws in 1909. New Jersey and Iowa, 1911; Nevada and New York, 1912; North Dakota, Kansas, Michigan and Wisconsin, 1913; Nebraska, 1915; New Hampshire, Oregon, South Dakota, 1917; Montana and Delaware, 1923; Virginia, 1924; Ohio, Minnesota, Idaho and Maine, 1925; Mississippi, 1928; Arizona and North Carolina, 1929.

Many laws become perfect only through use and amendment. Few laws are perfect as orig-

inally drawn. The imperfectly constructed sterilizing laws of Indiana, Nevada, and New York have been deemed unconstitutional; in New Jersey the section of the law relating to epileptics was considered unconstitutional. In 1927 Indiana enacted a new and more wisely constructed law. New Hampshire adopted a new law similar to that of Virginia and repealed her first law in 1929. Nebraska, Washington, Maine and Delaware enacted strengthening amendments to their existing laws in 1929.

In the noted case of Carrie Buck vs. Virginia the sterilizing law of Virginia was declared constitutional by both the Supreme Court of Virginia and the Supreme Court of the United States, and the Michigan law has been declared constitutional by the Supreme Court of that state; and this month the sterilization of the feebleminded was upheld by District Judge F. W. Messmore of the state of Nebraska. At the same time the Judge held unconstitutional its application to insane patients and habitual criminals.

There are now in all twenty-four states which have sterilizing laws on their statute books. Dr. Harry Laughlin's complete survey of the sterilizing laws of the United States and their results to 1926 shows that the law at that time was functioning satisfactorily in four states, moderately well in eight states, sporadically or not at all in the remaining states. Eighty-five hundred and fifteen legal sterilizing operations have been reported in the United States by Gosney and Popenoe.

As the inmates of institutions for the insane are about four times as numerous as those of the feebleminded and epileptic, it is not surprising that twice as many sterilizing operations have been done in institutions for the insane as have been done in institutions for the feebleminded.

When Justice Holmes rendered his decision on the Carrie Buck case May 2, 1927, he declared that it was not unreasonable to require some sacrifice for the public welfare, as normal individuals in war time were required to give their lives for their country. His words seem to classify eugenic sterilization under public health laws such as quarantine and vaccination. Since quarantine and vaccination are unpopular with some of those subjected to their mandates it should be no cause for wonderment that a new law like sterilization with which people have previously been unfamiliar should be slow in operation. It is best that it should proceed slowly, cautiously and wisely.

In contemplating the eighty-five hundred and fifteen operations done under the sterilizing laws in the whole United States we should remember that in several states these laws are new and time has not elapsed in which to show results. Our deductions from the evidence presented point to the fact that the passage of sterilizing laws by so many state legislatures, the reënactment of new laws when old ones have proved unconstitutional, the prompt acceptance and passage of strengthening amendments, all demonstrate a very considerable public opinon expressing hope of human betterment, extended liberty and financial relief through sterilization. The Supreme Courts of Virginia, Michigan and the United States have proved sterilizing operations constitutional and acceptable under certain conditions, as follows; the law must require formal notice to guardian, opportunities of appeal and adequate safeguards to the rights and liberties of the person to be operated on. The law must provide that the operation be done on those whose hereditary evidence indicates that they are probable potential transmitters of their disease or deficiency, and they must be inmates of state or county institutions. I believe it is unnecessary to apply the sterilizing law to that large group who for mental, social and economic reasons must be afforded state or county care for life. The sterilizing law applies most properly to feebleminded, insane or epilepties in state and county institutions who have relatives and friends who could care for them if sterilized or who would be able to earn their own living outside an institution, and to only such of this group whose heredity makes them probable potential parents of mentally deficient, insane or epileptic offspring. This interpretation of the sterilizing law greatly curtails its application.

After giving full credit to the many important causes of mental deficiency which should not be overshadowed by the dramatic rehearsal of family hereditary charts there may be found in every state mentally deficient families whose ancestors have been mentally deficient, epileptic or insane, who inter-marry, who seldom accumulate property, who are socially and economically inadequate, who live in disorganized confusion and cannot profit by financial aid when extended to them. Members of such families can produce children but are unable to care for them. To individuals of these strong family hereditary groups as inmates of state or county institutions with prospects of greater personal liberty and ability to care for themselves the sterilizing law is the most applicable.

Sterilization is not a solution of the mental deficiency problem but is a valuable adjunct to a program of preventive medicine. Sterilization is the surest known way for the prevention of the transmission of hereditary mental deficiency and disease. The future progeny of any young person cannot be computed. If an approved, carefully administered eugenic sterilizing law were applied thoroughly throughout the United States in only cases of known hereditary mental deficiency and disease, in time the number of potential transmitters of mental deficiency and mental disease would be lessened.

PROPHYLACTIC NEEDS

Ten per cent. of all the feebleminded in our institutions are cripples. Proper care and super-

vision of one badly crippled feebleminded child is equal in cost and labor to that of approximately three physically well mentally deficient persons.

Much crippling is due to such secondary causes as injury to the brain at birth, encephalitis, meningitis, poliomyelitis, epilepsy, irradiations, endocranopathy and syphilis. In 1927, 10,628 deaths were reported in our birth registration area chargeable to injury at birth. These figures do not include stillborn infants, and were obtained from the Surgeon-General of the United States. Investigation has demonstrated that injury to the head at birth is sufficiently severe to produce blood in the cerebrospinal fluid in 10% of all births.

In spite of all efforts heretofore, encephalitis, meningitis and poliomyelitis contribute their quota to the etiology of feeblemindedness. No research work has yet revealed the cause of epilepsy—another considerable contributor. The users of radium and x-ray in the treatment of pelvic tumors should all be aware that monstrosities and various degrees of feeblemindedness have resulted from their use. Endocranopathological conditions are contributing factors about which we are as yet largely in the dark. The percentage of syphilis among institutional feebleminded is so nearly equal to that of normal persons outside the institutions that it is not credited as an important cause for mental deficiency. It is well known, however, that this disease has a selective proclivity for the brain and nervous system, and is capable of deleterious action on the germ plasm. That syphilis is not a cause of feeblemindedness by its remote action through the ancestry has never been satisfactorily demonstrated. A medical science developed and directed toward the prevention of these diseases would greatly lessen the number of feebleminded children contributed from this group. Research and education should be productive of better prenatal care, better obstetrics and better pediatries.

INTER- AND EXTRA-MURAL CARE

From the date of the establishment of the first permanent English-speaking colony in America 226 years elapsed before a state legislature moved to provide an experimental class for the feebleminded in 1846. This experimental class became in 1848 the first state institution for the feebleminded in the United States, and is now known as the Walter E. Fernald State School.

Previous to 1846 the mentally deficient in urgent need of segregation were cared for in poor farms, jails and prisons. The legislative trial classes of those days were necessary to prove to the lawmakers the desirability of the physiological education advocated by Edouard Seguin. Soon these classes were crowded with children in need of permanent housing as well as training and the urgency of their need led to the establishment of state schools.

In 1893 seventeen states had institutions of this kind. At present every state in the union excepting Nevada has made provision for institutional care of its feebleminded. We now have 76 state and 101 private schools for the feebleminded and epileptic in the United States, not including the institutions especially designed for epilepties. These institutions have a population today of approximately 65,000.

It is apparent from this development that the state institution has been the main dependence of every state in meeting this problem and yet there are upwards of 15,000 applicants clamoring for admission to these institutions who cannot be accommodated.

Some states have made institution provision for 1/10 of 1% of their population. As these states are still increasing provision, we are yet to see whether when all those in urgent need of care are provided for the number in institutions will not reach approximately 2/10 of 1% of their population.

As many states must increase the size of their existing institutions and others must build new it is not inappropriate to mention the disputed point as to how large a school for the feebleminded should be, and also to consider its location and principal necessary features.

Several European countries consider small institutions desirable. There are very few superintendents who can be intimately acquainted with all persons in and all parts of an institution of more than one thousand. I personally feel an aversion to an overgrown institution in which the superintendent can be only the director of a gigantic machine. Yet the size must be governed somewhat by the denseness of the population and the circumstances. Administrative ability is not confined to any one class, but there is no better background of preparation for the superintendent of a school for feebleminded children than a medical education. With it, however, must be associated executive ability.

An institution should be located in proximity to the most densely populated area from which its inmates are to come.

The location should be near a town or city so that social opportunities may be offered the employees, and an electric light and power supply be assured until the institution is large enough to manufacture its own. It should be near enough a railroad that a spur track can be run onto the grounds and to the boiler house and storeroom sites for the delivery of freight.

If the area on which the institution is built is covered with trees, preferably young trees, by wise cutting for building sites, suitable groves of young trees which will improve with age can be secured at once for use of the different groups of children.

The institution should admit all classes of feebleminded but have ample opportunity for differential classification. This item of classification is so important that in the sunny south

practically a double institution must be built. Persons outside an institution seek their own classification; in an institution, classification is forced upon one. Proper classification is a large aid toward adjustment.

Each institution is an individual expressive of its environment, superintendents, architects, boards of directors and government responsible for its creation. It is better that it should not grow so rapidly as to lose the outstanding features of its personality. During its rapid period of development the institution should have little need for that feature of institutional care known as "the colony".

THE COLONY

The colony system was developed in this country years ago by Dr. Walter E. Fernald and Dr. Charles Bernstein. Webster's dictionary defines a colony as a body of emigrants or their descendants in a remote region under the control of the mother country. As the colonizing mother country has most often in history been an old country wanting in room and over-populated so the urge to colonization is most active in the old, inadequate state institution with an accumulation of special groups.

Colony extension is best adapted and most often utilized with the adult physically strong, industrious young men and women. Colonies may be industrial, domestic or agricultural and located in the center of a city or remotely in the country.

PAROLE

Parole or placement in family care is a part of the program which has been growing in popularity since 1914 when family care and placement was organized at Wrentham State School. Probably in the majority of institutions not over 10% of admissions prove of sufficient intelligence and adaptability to be successful on parole to private families. Colony care and parole afford those admitted to institutions auxiliary opportunities for social and economic adjustment and greater liberty, and are valuable adjuncts to institution care.

The state school for the feebleminded is in a sense a service center. Its purpose is to render service to the community and those committed to its charge, to create surroundings within its precincts conducive to happiness and favorable to social adjustment, both to its employees and to those committed. The school should cultivate the best and most friendly coöperative relationship with the community through free visits from societies, schools, and colleges, and by lectures and clinics.

It is desirable to encourage by visits to state institutions the increasing interest shown by schools and colleges in abnormal psychology. In the past schools and colleges have given fairly liberal courses in normal psychology but have almost entirely ignored the field of abnormal psychology. The demand for teachers of special education is now sufficiently great to warrant the increased interest on the part of schools and colleges in abnormal psychology, and a recognition of the fact that abnormal psychology is found not alone in the state institution but in every community.

HOME CARE

The cost of construction of state institutions is bound to have its effect on the care and supervision of the mentally deficient and require the development of every defensible plan for extramural care. Our courts commit many to the guardianship of social and charitable agencies. It may be possible to legalize specially qualified individuals in every county as guardians to whose care selected cases to the number of twenty-five or more may be committed. That old institution of home care can further be developed, but home care of a feebleminded child in a feebleminded family cannot be recommended.

Insurance has extended itself into almost every phase of human life. It is possible to insure the voice, the weather, against fire and against ill physical health. Why should it be presumptuous to assume that some form of insurance may not be developed which will guarantee the proper supervision of a group of mentally deficient children?

SPECIAL CLASSES

In 1904 the inspiration for the creation of the Binet Simon mental test came to Alfred Binet because of the fact that he was appointed to select children from the public schools for special classes in France. The growth of special education in Europe somewhat preceded that of the United States. Special or adapted education is not to be wondered at or looked upon as unusual. It is perhaps a source of wonderment that educational activities throughout the United States have become so remarkably standardized. Differentiation and individuality is marked throughout nature, and when possible to afford individuality of education it is desirable to do so. As far as I am able to learn there are approximately 62,000 boys and girls in special classes in the United States. With a stable home, reasonable parental supervision and acceptable behavior on the part of the child there is no reason why any child with an Intelligent Quotient above 50 cannot be taught in the public schools. Educators trained for a lifetime in academic subjects should not minimize the educational value to mentally deficient children of manual work.

Many states have no law which specifies that special education shall be provided. Such laws are not only educational but effectual in affording mentally deficient children and their parents that equality of rights which is the first of rights.

Some state authority which might well be the

commissioner of education, in coöperation with the institutions and agencies, should make liberal provision for pamphlets of instruction for the use of parents in care and training mentally deficient children in the homes.

DEFINITION AND STANDARDIZATION

For twenty years a great many people over a wide area have been talking and writing about this subject. With a laudable desire not to stigmatize the feebleminded and in efforts at expression they have adopted many synonymous and semi-synonymous terms. People speak of the mentally deficient, the feebleminded, the subnormal, the exceptional, the unusual, the under-endowed, the hypophrenic, the orthogenic, etc., and also of special classes for the ill-adjusted, auxiliary classes, opportunity classes, orthogenic, disciplinary classes, atypical classes. The definition, acceptance, standardization and adoption of a suitable phraseology and nomenclature would be of great advantage to this field of endeavor.

STATE RECIPROCITY

I would add to a community program free exchange of dependents with other states. There is at present a great lack of uniformity in state laws covering legal residence. It would happily facilitate exchange of dependents if these laws could be made more uniform throughout the country and friendly coöperative relationship everywhere established.

In any community program there should be a complete liaison between departments. Good ultimate results may be expected only by continuous long-time follow-up work.

The recent report of the British Mental Deficiency Committee states that "in England and Wales 33% of the mentally deficient live to be 40 years of age or older". Normal society asks few questions of the person who can make and maintain satisfactory social and economic adjustments and as the world judges a person by his accomplishments, one of the principal objectives in any community program should be typified by that spirit of true helpfulness which strives to train the mentally deficient person for the maximum accomplishment within his or her ability. To be happy in life each individual must experience some success. In mental deficiency the surest path to this success is to be sought through simple, helpful occupation. Therefore, the teaching of occupation or work in its various phases is the keystone in the arch of any community program and must permeate every branch of our service to the mentally deficient. Any honest occupation which renders service to one's fellowmen is a wonderful integrator of personality. Whether it be in the special class, vocational center, or the state institution, the teaching and training of the mentally deficient in useful occupation through which such person can with self-respect enjoy the stimulus of accomplishment is the community's greatest contribution to this class and through simple, helpful, human service the mentally deficient can in turn contribute the most to the community.

Quotations from Dr. Walter E. Fernald, Dr. George L. Wallace and Horatio Pollock are included.

SUSPENSION OF A RETROVERTED MYOMATOUS UTERUS DURING PREGNANCY—A CASE REPORT

BY ROY J. HEFFERNAN, M.D.*

FIBROID tumors of the uterus are not a rare complication of pregnancy, but the following case is unlike any appearing in the literature to date and presents so many unusual features that I felt it should be reported.

Mrs. A., a primipara of 33, married 8 years, was first seen July 23, 1928. She had suffered from no serious illnesses and had never had an operation. Her catamenia began at 14 years, were regular, of the 28 day type and her last period began May 17, 1928. Except for slight nausea, she felt well up to 4 days before I saw her. Since then there had been an occasional showing of blood accompanied by a sensation characterized by the patient as a "bearing down feeling".

She appeared to be in excellent health and the general physical examination was negative. The blood pressure was 128/84 and the urine normal.

Vaginal examination revealed the cervix in the anterior fornix directed toward the symphysis pubis. The cavity of the pelvis was almost completely filled with the retroverted body of the uterus, definitely larger than the duration of amenorrhea would warrant. An unusual firmness of the posterior uterine wall was noted. There was a slight mucosanguineous discharge.

A gentle attempt at replacement, by bi-manual manipulation, was unsuccessful. With the patient in knee-chest position, the fundus resisted all efforts at dislodgment, including pressure, with a sponge on a forceps, through the vagina, and digital pressure applied per rectum.

Four days later, in spite of regular and frequent use of the knee-chest posture, the retroversion persisted. The bloody show had increased, the "bearing down" sensation was more pronounced, and a low, dull, sacral backache had developed. There were also occasional, slight, cramp-like pains in the lower abdomen. It was obvious that miscarriage would ensue if the uterine displacement was not soon corrected and every effort was made to do this, but without success. (Traction on the anterior cervical lip with a tenaculum combined with pressure on the fundus, a very useful procedure with a retroverted *non-pregnant* uterus, was not attempted.)

The situation was explained to the patient and her husband. If the case were left to nature, miscarriage would almost certainly result, whereas the

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chances of a continuance of the pregnancy after operative correction and suspension of the uterus were at least fair. The decision was, however, put squarely up to them. They elected the operation.

Operation at the Carney Hospital, August 19, 1928, under ether anesthesia.

After a median suprapubic incision, with the patient in moderate Trendelenburg position and the intestines retracted, the uterus could be seen firmly incarcerated behind the promontory of the sacrum. The fundus was dislodged by gently pushing it from left to right, under the promontory. It was then easily raised and the posterior wall brought into view. The entire surface of the latter was covered by a myoma, sessile, and too extensive to remove by myomectomy. Extreme care was exercised to avoid touching the ovaries lest the corpus luteum vera be disturbed. The round ligaments were seized about 1½ inches from the uterus and fixed to the abdominal wall (Olshausen technique). The abdominal incision was then closed in layers without drainage.

Postoperative convalescence:

The patient received frequent doses of morphia for the first four days. There was slight staining the first day but none after that. Resting on the abdomen and sleeping in a modified Sims' position were encouraged. On the tenth day the patient was out of bed and returned to her home 4 days later. Examination revealed the uterus in good anterior position.

The remainder of the pregnancy passed uneventfully and on Feb. 26, 1929, after a 14-hour labor, I delivered a normal 8 pound boy by manual rotation, R.O.P. to R.O.A. and mid-forceps. The third stage of labor was normal, but a tumor, the size of a grape-fruit, could be readily felt, attached by a definite pedicle to the posterior-superior aspect of the fundus. The routine ergot and pituitrin administration was omitted, as it was thought these might predispose to necrosis of the neoplasm.

The puerperium was normal and the patient was discharged on the fourteenth day. She nursed her baby for 3½ months and was readmitted to the Carney Hospital June 19, 1929. At operation, the following day, the uterus was found suspended in normal anterior position, with a myoma, the size of an apple, attached by a broad pedicle to the posterior wall, an inch below the fundus. The tumor was resected, the incision in the uterus peritonealized and the wound closed in the usual manner. The patient was discharged on the thirteenth day and has subsequently enjoyed excellent health.

Comment:

This case illustrates that when conservative measures fail, an incarcerated, retroverted uterus may be replaced at operation and suspended so that the pregnancy may progress to term.

SALT LAKE CITY WAGES SUCCESSFUL SMOKE ABATEMENT CAMPAIGN

Excerpts From the Report of Investigation on This Problem

One of the most enlightened smoke abatement campaigns that has been waged in this country is that conducted for the past several years in Salt Lake City, Utah, according to the United States Bureau of Mines, Department of Commerce. The campaign was inaugurated by the municipal authorities in coöperation with the Bureau of Mines and the University of Utah in 1919, and the result has been to reduce at least 90 per cent. of the smoke from large industrial and heating plants.

A survey was made of all the worst plants so that recommendations for improvement might be made when a smoke department was organized.

A study was made of the domestic heating problem. Methods of firing were studied and it was found to be entirely possible to reduce smoke from this class of equipment to a low minimum. Methods of starting fires were emphasized and instructions to domestic-furnace operators formulated.

A vigorous educational campaign was undertaken with all classes of fuel consumers. All of the large industrial and heating plants were instructed in regard to desirable mechanical changes. The railroads were asked to equip all engines with smoke prevention devices, and householders were instructed in regard to methods for the burning of bituminous coal with a minimum amount of smoke.

An interesting feature of the campaign was the construction of an observation tower 270 feet high from the street on top of a centrally located building. Telephone connections were made with about 1,300 plants and whenever a chimney was seen to smoke the fireman was notified by telephone. Records were kept of each plant during the entire daylight period. A searchlight was installed to aid in regulating smoke during the evening hours.

The following conclusions are drawn by the Bureau of Mines regarding the smoke abatement campaign in Salt Lake City.

The smoke from large industrial and heating plants has been reduced at least 90 per cent. This reduction was effected by coöperative methods in improving plants and instructing firemen, and through a system of rigid inspection and control.

An observation tower is very effective in a smoke-abatement campaign.

Small heating plants, heretofore neglected in similar smoke-abatement campaigns, can successfully be converted into smokeless types at small cost. Every plant in the business and industrial section of the city is now in condition to operate within the smoke ordinance.

Railroad locomotives now contribute little to the smoke nuisance. Cinder fall in the railroad district is still high, and its eliminaton is a problem.

With present equipment and the present smoke ordinance and organization, the smoke from all plants, except residences, can be kept low enough not to create a smoke cloud.

To be successful, a smoke-abatement campaign must be continuous.

Further details are given in Report of Investigations 3001, "Nine Years of Smoke-Abatement Work at Salt Lake City," by Austin Gudmundsen, copies of which may be obtained from the United States Bureau of Mines, Department of Commerce, Washington, D. C.

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 16251

URINARY OBSTRUCTION AND DYSPNEA

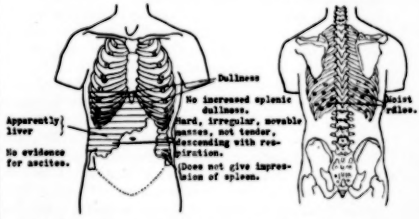
MEDICAL DEPARTMENT

A colored Canadian choreman sixty-seven years old entered March 13 complaining of difficulty of urination of a year's duration.

In March, a year before admission, the patient had two or three periods of a night and a half when he was unable to urinate although he had frequent desire to do so. Two or three times his physician catheterized him and obtained large amounts of urine. After this acute attack, which lasted only a few days, he was somewhat but not entirely relieved. He frequently desired to urinate but could not. Until the end of January he got up about once a night to try to urinate, often being unable to. Since the end of January he had often passed a whole day and night with little or no urination. On several occasions since the end of January his doctor had had to catheterize him. Since that time he had been getting up several times a night, usually with only a little dribbling as the result. In February there was a little blood in the urine on a few occasions, possibly a few times before that. The urine was very turbid. During the past month pressure from his bladder had given him an uncomfortable feeling in his lower abdomen, much relieved by catheterization. Since the end of January he had been weak and dyspneic. He continued work until the middle of February. Since that time he had stayed at home, usually in bed. For the past month he had had marked loss of appetite. Once, a few weeks before admission, he was nauseated and vomited food just eaten. For the past month his bowels, which were previously regular, had required cathartics and an enema every day. During the past few weeks his stools had been getting lighter brown in color. His weight had fallen from 175 pounds the previous summer to 145 pounds at admission. He had noticed slight swelling of his legs at night for the past year, more marked during the past month. During the past month he had had some attacks of palpitation at night and some orthopnea.

For years he had been troubled with a great deal of gas. For the past four years he had had an attack of bronchitis every winter lasting for several weeks with a great deal of cough. For the past few months he had had a numb feeling in his right leg from the hip down.

Clinical examination showed an emaciated negro. Apex impulse of the heart felt in the fifth space, heaving, 12 centimeters to the left of midsternum, 4 centimeters outside the midclavicular line. Right border of dullness 2 centimeters to the right, supracardiac dullness 4 to 5 centimeters. Occasional extrasystoles. A soft systolic murmur at the apex with a rougher one at the aortic area. Artery walls markedly palpable and tortuous. Blood pressure 145/70. Lung signs and abdominal masses as shown in the diagram. Moderate pitting edema of the


Dullness
No increased splenic dullness.
Hard, irregular, movable masses, not tender, descending with respiration.
Apparently liver
No evidence for ascites.
Does not give impression of spleen.
Moist rdles.

ankles and shins. Prostate markedly enlarged, hard and fixed. Pupils irregular, otherwise normal.

Urine bloody at one of four examinations, specific gravity 1.021 to 1.028, a slight trace to a trace of albumin at all of four tests, 10 to 25 leukocytes per field at three, sediment loaded with leukocytes at the fourth, loaded with red cells three times, 6 to 7 per field once. Blood: 8,000 leukocytes, polynuclears 56 per cent, hemoglobin 80 to 70 per cent, reds 4,200,000 to 4,000,000. Smear normal. Two Hintons and two Wassermanns strongly positive. Non-protein nitrogen 40 milligrams March 14, 85 April 3. Liver function, 12 per cent retention.

Temperature 99° to 102.2° during the first nine days, afterwards normal until March 31; a terminal rise to 101.9°. Pulse 68 to 119, only twice above 95. Respirations 17 to 32.

X-ray examination. The patient had considerable difficulty in retaining the barium enema, and because of this the colon was filled only as far as the middle of the transverse colon during the fluoroscopic examination. The distal portion of the colon contained considerable gas and was somewhat dilated. No filling defects could be demonstrated. On the film taken the barium appears to have passed on to the cecum and the colon shows no defects. The examination was not entirely satisfactory, but as far as could be determined there was no organic lesion of the colon. The diaphragm was rather high and limited in excursion. The lung fields were clear. The heart shadow was prominent in the region of the ventricle. The film of the pelvis showed marked increase of density of all the bones, particularly on the left side of the pelvis. There

was no evidence of destruction in the bone. The bones were not increased in width and the trabeculae did not appear coarse. The lower lumbar spine showed similar changes. The upper portions of the femora were negative. The kidney outlines were obscured by unusually large amounts of gas in the colon. The colon appeared dilated except the rectum, which was rather small. Proctoscopy was suggested.

A urological consultant reported, "The prostate is moderately large, firmer than usual, but elastic, movable and not nodular. I should say it was a benign enlargement of the gland. The mass in the left flank feels like an enlarged kidney, possibly hydronephrotic."

March 16 with the increase of temperature to 102.2° the patient looked and felt much worse. He complained of generalized lower abdominal pain and the sensation of disintegration. March 18 he was troubled with distention. He refused to eat and took little fluid. A stomach wash yielded a little material with fresh blood clots and no free hydrochloric acid. March 20 pain over the left kidney was the chief trouble. With the return of the temperature to normal March 22 there was general improvement. He was free from distention, slept without morphia and began taking soft solids and fluids well. He continued to improve. March 28 the mass in the right flank seemed definitely smaller, but later it was decided that little change in the actual size could be made out, though the masses seemed to have dropped away from the fingers. The visiting physician felt a lump in the liver which moved as the right flank was pushed, and believed the entire mass on the right side was liver. The patient continued to improve subjectively until the night of March 31, when he was very restless and slightly irrational. The next morning he appeared stuporous. His face was pinched, his eyes rolled up, his mouth and tongue were drawn to the right. He was slightly weaker in the left arm and leg, but not paralyzed. He was given considerable morphine. That night the pulse was strong but slightly irregular, with an extrasystole every five to ten beats. The next day he was very stuporous. There was dullness with râles over the entire right base. The liver was very large and very nodular. There were several large movable nodules in the left abdomen.

April 3 the patient moaned a good deal and placed his hand over the left occiput. He continued to moan and toss. The evening of April 4 he died.

Clinical Discussion

BY RICHARD C. CABOT, M.D., AND LESLIE K. SYCAMORE, M.D.

NOTES ON THE HISTORY

Dr. Cabot: We have here two main groups of symptoms, those that concern the bladder and those that concern the heart. He certainly could not have orthopnea from the bladder or from anything else except weakness of the heart. That numb feeling in the right leg I do not understand. Of course if he has cancer of the prostate we think of metastasis in the pelvis.

NOTES ON THE PHYSICAL EXAMINATION

That outline suggests a liver enlarged from passive congestion.

"Prostate markedly enlarged, hard and fixed." That word "hard" is of course the interesting one. We want to know just how seriously they mean it. The diagnosis of prostatic cancer depends on the skill and experience of the examining physician. "Stony" hardness is the word we hear so often. That may be obscured by edema through which one has to get down to the hard tissue. I do not know from this report just what they thought. So far as fixation of the gland is concerned, that may be due to chronic inflammation, as can a good deal of hardness. I do not see anything in this examination whereby we can say that it is cancer or not cancer. This condition might come from chronic gonorrheal prostatitis.

We can get all the data given in this urine examination from either a bad prostate or from cancer. I still cannot tell.

I do not see how that blood examination helps us in relation to his heart, certainly not in relation to his prostate or his bladder.

The non-protein nitrogen is markedly raised.

The liver function is on the border line.

Dr. Sycamore: I remember doing the fluoroscopic examination on this patient. He had a dilated bowel with a lot of gas in it, and it was quite difficult to fill it with barium. He complained a good deal. On fluoroscopy the colon was filled to about the middle of the transverse colon. So far as could be seen it was normal. Films were then taken and in the meantime the barium had passed over to the cecum. This appears normal. The examination was not entirely satisfactory because of so much gas, but so far as we can say the colon was apparently normal. A genito-urinary film was taken. As you see, the kidney outlines are obscured by a tremendous amount of gas in the bowel. This film was taken with the patient on his back and magnified the colon somewhat. Usually colon films are taken with the patient on his stomach. Even so the colon is very much dilated, especially in the vicinity of the sigmoid. The distal portion of the bowel is not distended, suggesting that there may be block at the sigmoid. However, there was no evidence of that by barium enema.

We then examined his pelvis and his spine. The film of the pelvis shows considerable increase in density of the bones all through, more marked in the left side, as you see, and especially in the region above the pelvic brim. That appearance of increased density can be produced by very heavy bones. But in that case you expect it to be equal on both sides and you

see it around the region of the acetabulum and pelvic brim where the bones are thick and not in the wing of the ilium, where it appears to be in this case. That leaves metastatic malignancy and Paget's disease to be considered. In Paget's disease we expect to see some enlargement in the actual diameter of the bones and we expect to see coarse trabeculations, neither of which is shown on this film. In metastatic malignancy of the sclerosing type the only finding may be increase in density of the bone. There appear to be similar changes in the lumbar vertebrae, though not so marked as in the pelvis. The long bones were examined and found negative. The skull should have been examined, but I do not find the films here. That appearance in the pelvis is very suggestive of sclerosing metastatic malignancy, for which in a man the primary focus usually is found in the prostate.

The heart shows changes similar to those we found in Case 16231*, prominence of the ventricle and tortuosity of the aorta. But in this case the prominence is much more marked, and in the oblique view both the ventricle and the ascending aorta appear definitely dilated. That is, we have evidence of hypertrophy and dilatation of the heart, chiefly in the left ventricle, with tortuosity and dilatation of the aorta. These changes can be due to hypertensive heart disease or luetic heart disease. We are unable to make the diagnosis by X-ray between the two. There is some increase in the lung markings, probably secondary to the heart changes.

A STUDENT: Do you find the bones thickened in luetic periostitis?

DR. SYCAMORE: Luetic periostitis is a disease that affects the long bones. It is primary most often in the tibiae. I have never seen a case primary in the pelvis. I do not think it would ever be in the pelvis without evidence in the long bones.

DR. CABOT: There is a little more in the hospital record on the abdomen that you and I did not get in our sheets. There seem to be masses in the region of the liver, hard, irregular, movable, descending with inspiration. In nearly any disease the liver will descend on inspiration. If the mass in the region of the flank is not spleen it is presumably kidney. There was no evidence of a lesion either in the liver or the intestine such as can be hard and nodular. Malignant disease and syphilis are the only two things I know that can give such liver lesions. Our X-ray examination suggests metastatic malignant disease from prostatic cancer. The genito-urinary consultant thought otherwise. He thought the patient had prostatic obstruction accounting for his urinary symptoms and very likely hydronephrosis in the left kidney. So up to date we have evidence of arteriosclerosis and enlarged heart and of something queer in the abdomen that gives a hard nodular mass,—I do not know what it is,—and a diseased prostate with very possibly left hydronephrosis.

*Published June 5, 1930.

I do not know what a "sense of disintegration" is like. He probably felt that he was dying. Plenty of people have that feeling and yet get well.

The material from the stomach wash makes us wonder whether he had cancer of the stomach. We have had nothing to make us think of it before. The tube itself might have caused the blood. He was sick enough to have absence of hydrochloric acid.

He ought to have a brain lesion, probably vascular.

DIFFERENTIAL DIAGNOSIS

Let us start from the presenting symptoms, urinary trouble. On the whole the best evidence we have about it is the statement of the genito-urinary consultant. The X-ray examination was in some doubt. The genito-urinary consultant was in no doubt. I shall bank on him and say it was not cancer of the prostate. That does not prove it was not cancer anywhere else. It does not prove it is not cancer in the bones. (1) We seem to have a prostatic obstruction, probably not cancerous, and very likely hydronephrosis on one or both sides. The kidneys were probably infected from so much catheterization. Hydronephrosis with some infection of both kidneys would probably account for the high non-protein nitrogen.

Then (2) we have this very definite nodular liver. I know only two things that can cause a nodular liver,—practically only one thing. We think immediately of cirrhosis. But in my experience we never feel the nodules of cirrhosis of the liver. The surface of the liver is irregular in syphilis, but the divisions of a syphilitic liver are so big that one does not ordinarily call them nodular,—they feel more as if the liver were cut up into large pieces. I think cancer of the liver is a good deal more likely than anything else. Malignant disease of the liver is not often primary. We should begin therefore by saying, Where else may this cancer be primary? We have no clear evidence in the blood or in the achylia gastrica. Cancer of the stomach is the most latent and easily-missed lesion there is. I cannot exclude it. It would account for his having so much metastasis in his liver. Whether that would account for the bone metastases I do not know. Suppose a man had cancer of the stomach and it went to his liver, could it go to his bones?

DR. MALLORY: It could, but it is unusual.

DR. CABOT: I do not think there is any evidence of disease in the intestine. The intestine seems to do on the whole well enough. It is quite consistent with these masses in the liver and elsewhere. We have no evidence of a primary tumor in the pancreas or the retroperitoneal glands. We have no evidence of ascites, which would go with the latter. There is said to be a nodular mass over on the left side of the abdomen. Is that in the liver? I do not know what else it is. It could be in the omentum or in

the abdominal wall. I am inclined to think he had two separate diseases, prostatic obstruction and malignant disease which involves the liver and started I do not know where.

Has he any syphilis in his heart? He had syphilis in his blood apparently, for he has positive blood reactions. We have had this year I think two cases with positive syphilitic reactions with no positive syphilis post-mortem. One was multiple sclerosis, the other metastatic brain tumor. We are getting a little gun-shy of saying much on the basis of those blood reactions. But I do not see how syphilitic aortitis can be ruled out. It would have to be one that has not produced aortic regurgitation or coronary trouble or aneurysm. The picture is consistent with arteriosclerotic heart trouble. I think on the whole the better bet is that it is not syphilis of the aorta. But if it were an aortitis without lesion of the valves or coronary arteries and without aneurysm we should have no way of finding it out during life. It could be due to arteriosclerosis, which on the whole is the best bet as to the trouble there.

I think it is possible he did not have any brain lesion. I have seen temporary hemiplegia like this with a normal brain in people whose kidneys are doing badly. I do not remember anything about the lungs. We have already incriminated organs enough, I think.

Those movable nodules may be in the omentum or the abdominal wall. Beyond that I have no guess.

DR. MALLORY: I should like to ask Dr. Sycamore if that heart picture could not be interpreted as a heart in transverse position as well as hypertrophied?

DR. SYCAMORE: No. The diaphragm is high, but the heart appears larger than one would expect to find it from this cause alone.

A STUDENT: Don't you think those nodules in the liver are pretty big for metastatic carcinoma?

DR. CABOT: I should not say so.

DR. MALLORY: They are sometimes bigger than the liver itself.

A STUDENT: In the last case the Hinton test was positive once out of three examinations. In this case all of them are positive.

DR. CABOT: I explained last week why I am so gun-shy about a diagnosis of syphilis as a cause of death. I do not believe it will turn out be a syphilitic liver if the lesion was merely nodular.

A STUDENT: Could hypernephroma give anything like that?

DR. CABOT: I do not see how it could. I never saw a hypernephroma come so far forward. The irregularities are usually very much bigger than this description suggests, unless by nodules one means something two-thirds of the size of a child's head.

A STUDENT: If that mass on the left side were spleen, would that make any difference?

DR. CABOT: I do not know that it would. I still do not believe it is the spleen connected with cirrhosis, and if it is not that I should not know what it is.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Cancer of liver, peritoneum, and bones.
Primary cancer of prostate?
Bronchopneumonia.
Late syphilis.
Luetic aortitis?

DR. RICHARD C. CABOT'S DIAGNOSES

Cancer of the liver, primary focus unknown.
Obstructing prostate, probably not cancerous.
Possibly hydronephrosis.

ANATOMIC DIAGNOSES

1. *Primary disease.*

Adenocarcinoma of the left kidney with metastases in the liver and miliary metastases in the lungs.

2. *Secondary or terminal lesions.*

Arteriosclerosis.
Benign hypertrophy of the prostate.
Hypertrophy of the bladder.

PATHOLOGIC DISCUSSION

BY TRACY B. MALLORY, M.D.

The man who said hypernephroma was on the right track. It was an adenocarcinoma of the kidney, a closely related tumor. The left kidney was enormously enlarged, filled with tumor, which like the typical hypernephroma had invaded the renal vein, and also grown down the spermatic vein almost to the pelvis. The right kidney was not involved. It was normal in appearance. The liver was filled with metastases.

He had a perfectly normal sized heart weighing 300 grams, with this huge mass pushed up from below into a transverse position. It showed a moderate degree of arteriosclerosis, and there was nothing that definitely suggested lues in the aorta.

He did have a very much enlarged prostate which was simple benign hypertrophy. He had hypertrophy of the bladder secondary to that.

DR. CABOT: You see why I am still gun-shy of syphilis. I said to Dr. Wolbach last Tuesday that I get very queer impressions about the syphilitic question. All these years I have been having just the same experience,—clinical evidence pointing to syphilis and none post-mortem. I do not hear people in New York or Philadelphia say they are clinically wrong in their diagnoses of syphilis.

DR. MALLORY: I feel sure one can have syphilis without having any anatomic signs to show for it at the ordinary post-mortem examination. If one studies one's cases as elaborately from one point of view as Warthin does at Ann Arbor,

spirochetes can be found in the great majority of cases of serological syphilis.

A STUDENT: Did they examine the bones?

DR. MALLORY: No. He did have miliary metastases in the lungs, but they were very small.

ORDERS

March 13. Soft solid diet. Force fluids to 100 ounces daily.

March 14. Digitalis grains iss four times a day for four days, then twice a day for one day, then grains iss daily.

March 19. Potassium iodide grains xv three times a day.

The remaining orders are for sedatives: veronal in five or ten grain doses in hot milk at bedtime (on two occasions the five grain dose repeated two hours later); morphia in one-sixth to one-quarter grain doses by mouth once a day or every four hours p. r. n.; codein grains ss by mouth; luminal grains iss at bedtime.

NOTES ON THE TREATMENT

BY DR. CABOT

The digitalis was doubtless given because of poor heart action. Whether it was of value or not I see no way to determine.

The iodide was presumably administered on the bare possibility that the trouble might be syphilitic, as a therapeutic test, believing that it could do no harm and that every faintest possibility of benefit should be met.

The rest of the medication is obviously to relieve pain or procure sleep.

CASE 16252

COMPLETE URINARY SUPPRESSION FOR SEVEN DAYS

MEDICAL AND SURGICAL DEPARTMENTS

DR. A. V. BOCK: This patient came for consultation at the request of Dr. Arthur Jackson on March 13. She was sixty-five years old, the widow of a physician. She gave the history that for the past six weeks she had had quite severe pain over the lower abdomen and lumbar region of her back every day, beginning about four o'clock in the afternoon and lasting all through the evening. She was quite free from distress in the morning. Associated with the pain she had a marked sensation of distention of the abdomen without any sensation of gas in her stomach or bowels. She did not belch gas and had none of the usual history of gastro-intestinal gas. She could relieve this distention somewhat by forcing vomiting, but never had vomited naturally. She also felt that the distention was relieved by voiding urine and by bowel movements. In the light of the later evidence one very interesting thing in the history was that she was unable to void urine during the last five or six weeks during the day, but when she lay down at night she then voided, and voided three or four times during the night. The only instance of that kind that I have ever seen was in a case of ball valve stone in one kidney in which there was apparently complete suppression of urine, blocking off one kidney with sympathetic suppression of function of the other, while the subject was active during the day. The patient gave a story of being able to void after lying down for one or more hours. Fluoroscopic examination showed a stone free in the kidney pelvis having a ball valve action with change of body position.

Since the onset of the pain her bowels had been somewhat constipated. Aside from that there were no gastro-intestinal disturbances. She had been taking very little food recently because she had most of her teeth extracted two months before. Her diet was normal except that she was eating small amounts of food. There was no history of cardiorespiratory disturbance. Forty-two years before admission she had a severe attack of influenza, followed by what she called a "nervous breakdown". For five years following this she had subsequent attacks of influenza, as was the case so often in that epidemic. There was a history of some weight loss. She weighed 160 pounds two years ago; at the time of her examination 149 pounds.

Clinical examination. She appeared to be quite well except that she looked tired. Her pupils were normal. Her vision was not good for close work, but good for distance. The mucous membranes were of good color. Nose clear. Ears normal. There was a small remnant of the left tonsil. The tongue had a gray coat. All the teeth were removed except the lower incisors. Hands normal, with no tremor. Peripheral arteries in good condition. Skin dry. Temperature 98.8°. Thyroid gland negative. No palpable peripheral glands. Breasts normal. Apex impulse of the heart felt in the fifth space 9 centimeters to the left of midsternum. Clavicular line 16. There was visible pulsation on both sides of the neck over the carotids. There was no thrill over the heart. No murmurs. Aortic second sound accentuated. Blood pressure 190/90 in prone position. There was no swelling of the legs. Knee jerks normal.

The only striking thing on physical examination was the abdomen, which was prominent. In the left side, extending 6 or 7 centimeters to the right of the navel and down 7 centimeters below it, was a large hard tumor mass extending well out in the left flank. Over the entire region there was dullness to percussion. No edge could be made out. General localization was in the region of the spleen. I thought of the possibility of myelogenous leukemia, but also considered the question of hypernephroma of the left kidney. The mass seemed however to be too far forward and too far to the right for such a tumor. The pelvic examination showed a small cervix with a slightly retroverted uterus. The right vault seemed normal, the left full. I thought this was probably associated with the tumor mass.

Hemoglobin 80 per cent, reds 4,800,000, leukocytes 4,000. Differential count showed polynuclears 61, lymphocytes 28, eosinophiles 1, two mast cells, five large monocytes and two myelocytes. Slight achromia. Blood platelets normal. I could not fit this picture into any type of aleukemic leukemia, and saw nothing in the smear to suggest lymphoma. A single specimen of urine was negative. Non-protein nitrogen 22 milligrams per 100 cubic centimeters of blood.

In the hospital the subsequent physical examination was in general the same. But the amount of abdominal distention varied so that we got a different impression of the mass. It seemed to be more central and one could palpate it more distinctly. It was a very firm, large mass without any palpable edge, and extended well over to the right, but seemed to be filling the left side more than the right.

Her first leukocyte count in the hospital on April 1 was 7,400, on April 12 10,000 and on April 17 10,600. The differential count on April 12 showed 72 per cent polynuclears, 13 per cent lymphocytes, 2 per cent eosinophiles, 1 per cent mast cells, 12 per cent large mononuclears. There was some achromia. The hemoglobin is recorded as 70 per cent. Platelets normal. A second count showed 55 per cent polynuclears, 28 per cent lymphocytes, 6 per cent eosinophiles and 11 per cent large mononuclears. I looked at all these smears with the idea of determining whether one could get any suggestion of malignant lymphoma. The second smear with 6 per cent eosinophiles was the only possible lead about it. There were several urine examinations done which were negative, specific gravity 1.012 to 1.024, no albumin, no sugar. Sediments were negative.

She was operated upon by Dr. Arthur Allen on April 18.

Dr. Arthur W. Allen: Pre-operative diagnosis: retroperitoneal sarcoma.

Under the anesthesia it was possible to outline the tumor very accurately. It extended from two fingerbreadths beyond the midline on the right to the anterior axillary line on the left, lying in the upper abdomen, very firm and fixed to the posterior wall. It felt about as large as a melon. A paramedian incision was made over the tumor and the peritoneum opened without incident. A few adhesions were encountered between the small bowel and the tumor near the midline. These were not freed. The tumor was extremely hard. The surface in places was slightly irregular. It was absolutely fixed to the posterior wall and extended from above the costal margin down the left gutter to the bifurcation of the aorta. The stomach and pancreas could be easily palpated, as could the pelvic viscera. It was very difficult to palpate the kidneys. I could not be sure of the left one, although the clear X-ray picture of both kidneys made this unimportant. A biopsy was strongly considered, but because of the adhesions of the small bowel to the tumor and the possibility of the tumor's being necrotic in the center it did not seem safe to excise a portion of the shell through the parietal peritoneum. We considered reflecting the peritoneum and taking a specimen from the retroperitoneal area, but did not feel that the patient's condition warranted it. Also we were under the impression that X-ray therapy was indicated regardless of the type of lesion and that biopsy would add nothing to prolong her life. The abdomen was then closed in layers.

Dr. Bock: After she was well on the way to convalescence Dr. Holmes was consulted with regard to treatment of the tumor by deep X-ray therapy. She had been given quite a good deal of X-ray treatment when suddenly on May 11 she developed complete suppression of urine. She did not void until Sunday, May 18, seven days later. During that time she developed the fairly characteristic picture of chronic terminal nephritis. She remained in a semistuporous to a comatose state. The only thing done in the way of therapy was that in the beginning we gave some morphia because she had a little twitching of the arms and we were afraid of convulsions. In addition we gave intravenous salt solution daily until May 16. It was then discontinued because of increasing edema of the legs. On May 18 she spontaneously began to void urine, though in a moribund state. Her death had been expected hourly, so it was a great surprise to have the kidneys begin to secrete. She died the following day with no particular event. She had been almost completely moribund for two days.

Dr. George W. Holmes: Was she tender over the tumor mass?

Dr. Bock: No.

Dr. Holmes: This patient was put through the usual complete X-ray examinations and nothing was found in the gastro-intestinal tract or in the chest. After consultation with Dr. Bock and Dr. Allen we felt justified in giving her X-ray treatment, though we did not know what type of tumor she had. She had a full erythema dose in divided sittings, carrying it over a period of about a week posteriorly over a rather large field. That would mean a full dose over both kidney regions and the tumor mass. She had about half a dose over the abdomen. When she stopped urinating the question rose as to whether suppression was due to radiation of the kidneys. The kidneys are affected by radiation, but I have never seen a case affected by that dose, and we give it a good deal. I felt that radiation was not the cause. We all agreed that we should not continue radiation in such a condition as that.

Dr. Bock: One other thing I meant to mention is that on the sixth day of complete suppression the blood showed non-protein nitrogen 103 milligrams per 100 cubic centimeters and uric acid 11.2. We were all rather surprised at such

a comparatively low nitrogen figure. It was very difficult to say what was happening in her nitrogen metabolism during the seven days of urinary suppression. One would expect a higher level of blood nitrogen.

A STUDENT: There was no biopsy of the tumor at the time of operation?

DR. BOCK: There was no biopsy on account of the risk of spreading metastases or starting hemorrhage.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Retroperitoneal sarcoma.

ANATOMIC DIAGNOSES

Retroperitoneal tumor, probably lymphoma.
Lymphomatous invasion of the left ureter.
Slight bilateral hydronephrosis.

PATHOLOGIC DISCUSSION

BY TRACY B. MALLORY, M.D.

The autopsy showed a huge retroperitoneal mass, certainly half again the size of a large grapefruit. It lay in and posterior to the root of the mesentery and completely surrounded the vena cava and the aorta, also both ureters close to their junctions with the pelves of the kidneys. On one side the tumor had invaded the wall of the ureter; on the other, though it surrounded it completely, there was no actual invasion. Probes could be passed without difficulty, but there was probably enough pressure from the surrounding tumor to cause a considerable degree of functional obstruction. It is quite possible that the necrosis subsequent to X-ray treatment may have resulted in enough increase in pressure to cause through that period of seven days temporary complete obstruction which was relieved later on when some of the products of necrosis began to be absorbed. A very large proportion of the tumor is necrotic. In the cut sections one can see sharply outlined yellow areas which look somewhat like caseous foci but more like the classical appearances of gummata. I have seen exactly this type of necrosis in tumors, particularly lymphomas, which had never had any radiation, so though a good deal of this necrosis is probably secondary to radiation, I do not believe we have any way of saying how much.

Sections of the tumor show it to be extremely undifferentiated, filled with large multinucleated cells. I do not think it is possible to say with absolute certainty what it is. On the whole it resembles lymphoma more than anything else, and I am inclined to believe that is what it is.

DR. EDWARD P. RICHARDSON: Were the kidney pelves dilated?

DR. MALLORY: Both of them were slightly dilated.

DR. BOCK: One point I should have brought out in considering the differential diagnosis is that the tumor was largely felt in the left upper quadrant. It seems to me good practice to be as certain as you can that a tumor in that region is not a hypernephroma even though you may feel quite certain it is spleen. I have had such patients have a pyelogram done to make as certain as possible about it. But in this case in the film taken of the abdomen both kidney outlines appeared so distinctly normal that we did not have a pyelogram.

In view of what has happened it seems that it would have been a very sound therapeutic measure within a day or two after her suppression to have catheters led directly into the pelves of both kidneys. We might have avoided the immediate termination. But of course the outlook was not very good for the future in any case.

DR. HOLMES: A point in connection with the therapy is interesting after we know what the tumor was. The dose this tumor received was probably considerably more than is necessary for that type of tumor. It is quite possible that as Dr. Mallory suggests the rapid necrosis and swelling of the tumor may have brought on some of the symptoms. One almost comes to the opinion after a while that we should never try therapy until we know what the tumor is. We should insist on biopsy and regulate treatment accordingly.

DR. ALLEN: In retrospect this case illustrates two very important points:

1. A biopsy should have been made regardless of danger, for the roentgenologist's information, so that he could gauge the dosage according to the pathology of the tumor.

2. We should have considered the possibility of this absolutely fixed tumor's surrounding the ureter, particularly on the left side, and after waiting a reasonable period after suppression of urine we should have had ureteral catheters passed into the pelves of the kidneys. This might have tided the patient over a period until the reaction subsided sufficiently to allow a normal flow of urine.

ORDERS

March 31. Medinal one tablet with codein gr. i for pain. Force fluids.
April 1. Argyrol one tablet at bedtime and in the morning. Medinal one tablet with codein gr. i by mouth for pain. Sherry one ounce t.i.d. Nux vomica and gentian mixture* one dram t.i.d. before meals.
April 4. Amytol compound capsules i p.r.n. for pain in back.
April 16. Opium suppository gr. i p.r.n. for pain.
April 17. Preparation for abdominal exploration in the morning. Soapsuds enema in the morning. Ether breakfast. Morphia gr. 1/6 with atropin gr. 1/150 at 9:30 a. m. Opium suppository gr. i.

*Tincture of nux vomica two drams, tincture of gentian compound one ounce, water to make four ounces.

April 18. Glucose 5 per cent, 6 ounces every 4 hours following operation. Morphia gr. 1/6 every 3 hours p.r.n. s.c. Fluids ad libitum post nausea. Low head rest p.r.n.

April 19. Morphia gr. 1/6 s.c. 2½ per cent glucose taps 6 ounces alternating with tap water.

April 20 to May 3. Morphia in 1/6 grain doses by mouth, one or two doses daily.

April 25. Sherry one ounce t.i.d. Nux vomica and gentian mixture dram i t.i.d. before meals.

May 4. As alternative for morphia: pantopon gr. 1/3 by mouth or s.c. Tincture of belladonna minims x t.i.d. after meals.

May 5 to 13. Pantopon gr. 1/3 by mouth daily.

May 8. Pancreobismuth and pepsin half a dram fifteen minutes after eating.

May 14. Luminal gr. iss two to three daily. Keep comfortable. Morphia gr. 1/4 s.c. if restless.

May 15. Morphia gr. 1/4 as often as necessary to keep the patient comfortable and prevent convulsions. (Given twice.)

May 16 to 18. Morphia gr. ¼ s.c. once or twice daily.

NOTES ON THE TREATMENT

BY DR. BOCK

The specific treatment in a case of this kind is always difficult unless an exact diagnosis can be made. It is the rule in this clinic to search for enlarged peripheral lymph nodes and do a biopsy whenever possible before attempting surgical or X-ray therapy. Many cases of malignant lymphoma remain undiagnosed and untreated because early biopsies were not done.

Malignant lymphoma may be a highly localized process such as involvement only of retroperitoneal lymph nodes or the spleen. The more common type begins in the lymph nodes of the neck with very often concurrent enlargement of the mediastinal glands. In such cases in addition to biopsy an X-ray film of the chest should be taken to determine whether mediastinal involvement is present. Bilateral glandular enlargement of the neck is seldom due to infection in the tonsils or teeth. It is only rarely due to malignant disease. If there are carcinomatous metastases to the glands of both sides of the neck, they can usually be differentiated from malignant lymphoma because they involve the skin relatively early. Enlargement of glands due to malignant lymphoma rarely shows skin involvement. The two common causes of malignancy in the glands of both sides of the neck are primary cancer at the junction of the upper and middle third of the esophagus and cancer in the ethmoid region. As Dr. Holmes has pointed out, if X-ray therapy is to be attempted, it is most important to know the nature of the tumor.

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THE ANNUAL ORATION AND THE SHATTUCK LECTURE

BY the courtesy of Dr. H. A. Christian and Dr. W. I. Clark we are able to present to our readers in this number the two outstanding literary features of the Annual Meeting of the Massachusetts Medical Society which has been held in Plymouth this week.

In the annual oration the author kindly, gracefully and yet definitely points out to the practitioner the all too frequent tendency to seize upon some assertions with respect to therapeutic agencies and apply the claims of ardent advocates in the treatment of conditions encountered in his patients.

The common tendency to accept the recommendations of a plausible representative of a manufacturer of pharmaceuticals has been generally condemned, but the orator in his discourse shows that physicians appear too ready to endorse the arguments of those writers on medical subjects who claim to have found effective ways of relieving or curing certain maladies.

This all goes to show that doctors are often too prone to discard well tried remedies and experiment with new products without a careful investigation of the relative merits of the older and the newer pharmaceuticals.

Dr. Christian's oration should be read with care and lead to a readjustment of the doctor's attitude toward his patients and the means employed in treating them. Even with all of the great discoveries in medicine it is well to know that some of the important principles relating to the art were applicable centuries ago and still hold their place in dealing with disease.

Unless equipped with facilities for research work the clinician can adhere to established methods to better advantage to himself and his patient than would be likely to follow the adoption of comparatively untried products. The expense to the patient may merit consideration in many cases.

The address by Dr. Clark on Industrial Medicine is timely because in addition to the suggestion in the title its relation to public health has become a factor in the larger conceptions of the functions inherent in the broad responsibilities of medicine to the public as well as to the institutions which are developing this service.

The growth and application of industrial medicine inside and beyond the walls of the factory is being watched with interest and in some of its phases with definite concern.

It must be apparent that its functions cannot be entirely intramural because some of the effects of the disabilities of the employees demand public health recognition. This may affect the extramural population in many ways. This service may have a definite relation to the economic questions relating to the practice of medicine. Along this latter line there has appeared a question of ethics which has agitated the minds of some who question the propriety of a corporation devoted to manufacturing goods not used in dealing with diseases, entering on the general practice of medicine outside the walls of the factory.

Everybody probably believes that the manufacturing plant must in justice to itself and its employees protect and care for its servants through the most efficient medical service possible. The relation of the medical service to public health is also self-evident. Beyond this it is reasonable to expect that industry and medicine can solve any conflicting interests to the advantage of both.

WHAT OF THE SUMMER?

OUR habits of work and recreation are to a considerable extent influenced by the seasons and we are now entering upon the period which suggests the possibilities of relaxation from the stress of daily toil.

Books will be put aside by the children, teachers will suspend the supervision of the plastic minds, professional and business men will steal

away for such time as may be possible and general efforts will be made to enjoy the freedom from daily business in preparation for another period of the routine of life.

The favorite order of the doctor is a change of scene and activity for the ambulant patient for he knows that this is usually more acceptable than prescriptions for drugs, physical therapy or investigation by the various technical procedures, but with this should go suitable advice about the unseen dangers of unfamiliar environments and caution about the amount of exercise which is prudent and will not impose undue strain on the bodily mechanism. A vacation is of value in so far as it brings power of accomplishment. It is deleterious if it in turn requires a period of recuperation from overstrenuous activities.

In giving advice with respect to vacations the doctor may here as at many other periods of his life stop and ask himself whether he should take his own prescription. If he finds an affirmative answer in his own consciousness of flagging interest in his work it may be well to have the matter decided by conference with a colleague and avoid the likelihood of having a fool for a patient. Perhaps he has found that the majority of his patients can do more and better work in eleven months than in twelve but has never applied this knowledge to himself. If he practices that which he preaches his influence may be greater.

It is probable that the average life span is longer among the vacation groups and when it comes time again to invite the old doctors to augment some emotional appeal perhaps those who have taken care of themselves will be on the honor roll in larger numbers.

The great medical and educational activities of the first half of the year are practically over and we are pleased to wish our friends pleasant and profitable vacations.

AN ANTI-COLD SERUM

In a paper reported to have been read before the Maryland Theological Society Dr. J. A. F. Pfeiffer of the University of Maryland Medical School has made the claim that he has discovered the organism which causes the common cold.

Cultures of this organism will be submitted to Dr. James A. Doull, chief of the research staff of the John J. Abel fund of the Chemical Foundation for crucial study.

Dr. Pfeiffer is reported to feel confident that the vaccine he has developed will prove to be of great value in controlling the disabilities caused by colds.

Dr. Pfeiffer received the M.D. degree from the Baltimore Medical College in 1908. We have been unable to find the record of Dr. James A. Doull. He may not have the M.D. title.

Why this announcement should have been made before a Theological Society is a pertinent question.

SOME OF THE ADVANTAGES OF GOLF

On page 1225 of this issue there may be seen a notice calling the attention of members of the Middlesex South District Medical Society and others to a plan for the formation of a golf association.

Golf is a popular and beneficial form of exercise. As a medium of friendly intercourse it may lead to more effective coöperation in the professional problems before the practitioners of that district.

We hope that the plan outlined will be endorsed.

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Christian, Henry A. A.M., LL.D., Sc.D. (Hon.) M.D. Johns Hopkins University School of Medicine 1900. Hersey Professor of the Theory and Practice of Physic, Harvard University and Physician-in-Chief, Peter Bent Brigham Hospital, Boston. His subject is: "The Practitioner's Need of an Intelligent Skepticism." Page 1181. Address: Peter Bent Brigham Hospital, Boston.

Clark, W. Irving. A.B., M.D. Columbia University College of Physicians and Surgeons 1904. F.A.C.S. Instructor in Industrial Medicine, Harvard School of Public Health. Consultant in Industrial Surgery, Memorial Hospital, Worcester. Surgeon to Norton Company, Worcester. His subject is: "Industrial Medicine and Public Health." Page 1187. Address: 53 West Street, Worcester, Mass.

Bland, P. Brooke. M.D. Jefferson Medical College 1901. F.A.C.S. Professor of Obstetrics, Jefferson Medical College. Chief Obstetrician to Jefferson Medical College Hospital. His subject is: "Remarks on the Prevention of Uterine Cancer." Page 1195. Address: 1621 Spruce Street, Philadelphia, Pa.

Peabody, Richard R. presents an article entitled "Psychotherapy for Alcoholics." Page 1199. Address: 25 Marlborough Street, Boston.

Baker, Benjamin W. M.D. Dartmouth 1898. Formerly Assistant Physician, State Hospital, Taunton. Superintendent, Laconia State School, Laconia, N. H. His subject is: "An Adequate Community Program for the Care of the Feebleminded." Page 1202. Address: Laconia, New Hampshire.

Heffernan, Roy J. M.D. Tufts College Medical School 1917. F.A.C.S. Visiting Obstetrician and Gynecologist, Carney Hospital. Visiting Obstetrician, St. Mary's Hospital. Instructor of Clinical Gynecology, Tufts College Medical School. His subject is: "Suspension of a Retroverted Myomatous Uterus During Pregnancy." Page 1209. Address: 524 Commonwealth Avenue, Boston.

MISCELLANY

SUICIDE IN THE UNITED STATES

Suicide is committed at a rate of about 336 cases per week in the United States. Last week Dr. Frederick Ludwig Hoffman, consulting statistician of the Prudential Insurance Company of America, printed a survey in the *Spectator*, insurancemen's magazine, of 45,000 cases of suicide effected or attempted in the United States last year.

Sacramento, Calif., had the highest suicide rate (52.8 per 100,000). Next came San Diego (51.8), San Francisco (39.3), Atlantic City (36.6), Quincy, Ill. (32.7). New York City (counting its five boroughs) had 1,255 suicides (rate, 20.9). The nation's rate was 18 per 100,000, slightly higher than 1928's 17.5. Last autumn's stockmarket crash was a cause of increase, but (observes Dr. Hoffman) "not as marked as might have been expected". But whatever the immediate cause of self-destruction, it is merely the detonation of a muddled mental state, whose cure lies often within the physician's power.—*Time*, June 2, 1930.

THE INSTITUTE FOR ADVANCED STUDY

By an initial gift of $5,000,000 by Louis Bamberger of Newark, New Jersey, and his sister Mrs. Felix Fuld, an educational foundation known as the Institute for Advanced Study has been endowed.

This institute will be established in Newark or vicinity and will devote its attention to postgraduate work and scientific research.

The institute will provide facilities for research by eminent men of learning and will have advanced students for and beyond the degree of Doctor of Philosophy or other professional degrees.

Dr. Abraham Flexner will be the first director, the rest of the board being the incorporators, Mr. Bamberger, Mrs. Fuld, John R. Hardin, Samuel D. Leidesdorf and Herbert H. Maas, and the following named persons: Frank Aydelotte, president of Swarthmore College, Edgar S. Bamberger of Newark, nephew of the founders, Dr. Alexis Carrel of the Rockefeller Institute, Dr. Julius Friedenwald of Baltimore, Alanson B. Houghton, former Ambassador to Great Britain, Herbert H. Lehman, Lieutenant-Governor of New York, Dr. Florence R. Sabin of the Rockefeller Institute, Percy S. Straus of New York, and Dr. Lewis H. Weed, Dean of the Medical School of Johns Hopkins University.

The work of the institute will not include any professional schools and will provide equipment only for research and postgraduate study and no striking effort will be made to attract members other than through the character of applicants for enrollment.

The fundamental purpose of the institution appears to be to give to those especially qualified opportunities for work independent of their financial means. Both women and men if qualified to do advance work will be accepted. Mr. Bamberger and his late partner Mr. Fuld have been contributors to many worthy projects.

When Mr. Bamberger retired from the business field he distributed one million dollars among his older employes.

Such men illustrate the too infrequent interest in world betterment.

CANCER DEATHS IN CALIFORNIA*

Cancer deaths in California increased by 117 in 1929, a total of 6,518 residents of California having died of this disease last year, an average of 18 deaths for each day of the year. This represents a cancer death rate of 146.4 per 100,000 population, as compared with a similar rate of 95.9 per 100,000 population for the United States in 1928. For the first time in the history of California, in 1928, cancer deaths exceeded tuberculosis deaths in number, and in 1929 the excess in cancer deaths over tuberculosis was increased from 328 in 1928 to 663 in 1929. Each year the number of cancer deaths in the state increases, consistently, while the number of tuberculosis deaths declines, consistently, almost each year. Cancer caused 10 per cent. of all deaths in California in 1929, and tuberculosis caused less than 9 per cent. of the total number of deaths that occurred within the state.

The migration of large numbers of retired elderly individuals to California is, perhaps, a factor in the production of a high cancer death rate for this state, just as the migration to California of large numbers of tuberculosis individuals is a factor in the production of a high tuberculosis death rate. Out of the total of 6,518 cancer deaths in 1929, only 874 were in persons who were born in California, 3,447 were in persons born in other states and 2,153 were in persons born in foreign countries, with nativity of the remaining 44 decedents unknown.

Most deaths from cancer occur in those who are past 45 years of age. The following table shows the age distribution of cancer decedents in California in 1929:

Age Group	Number
Under 1 year	5
1 to 4 years	19
5 to 14 years	12
15 to 24 years	33
25 to 34 years	124
35 to 44 years	515
45 to 54 years	1,189
55 to 64 years	1,694
Over 65 years	2,927

Cancer causes more deaths in women than in men. There were 3,376 such deaths in women last year and 3,142 in men. Comparatively few individuals of races other than white died of cancer in 1929.

*From the *Weekly Bulletin* of the California State Department of Public Health. April 5, 1930. Vol. 9, No. 9.

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT
WITH 1929 AND SEVEN YEAR AVERAGE
MONTH ENDING MAY 31, 1930.

DISEASES	1930 Wk. ending May 10	Wk. ending May 17	Wk. ending May 24	Wk. ending May 31	Average cases reported for week corresponding to May 31 for past seven years	1929 Wk. ending May 11	Wk. ending May 18	Wk. ending May 25	Wk. ending June 1
Cerebrospinal Men.	1	4	3	2	1	2	1	2	1
Chickenpox	92	63	74	45	64	61	95	64	77
Conjunctivitis, Inf.	-	1	-	1	-	-	-	-	1
Diphtheria	11	21	9	10	27	14	15	39	17
Encephalitis Epid.	2	-	1	-	-	-	1	-	2
German Measles	65	57	89	42	44	105	110	117	118
Influenza	10	-	4	2	6	7	10	12	5
Malaria	-	-	-	-	-	-	-	2	-
Measles	61	75	50	26	231	400	253	335	219
Mumps	37	52	37	31	51	74	77	111	76
Pneumonia (Broncho*)	21	25	23	9	21	26	24	23	24
Pneumonia (Lobar)	49	63	29	16	22	33	42	40	20
Poliomyelitis	-	1	-	-	-	-	-	-	-
Scarlet Fever	88	71	63	34	69	59	61	58	41
Septic Sore Throat	-	1	1	1	-	2	1	3	-
Smallpox	-	-	-	-	-	10	9	4	-
Tetanus	-	-	-	-	-	1	-	-	-
Tuberculosis (Pul.)	30	28	21	45	33	42	44	40	26
Tuberculosis (O.F.)	4	2	5	3	2	2	2	3	-
Typhoid Fever	1	-	1	1	2	-	1	4	1
Undulant Fever**	-	-	-	-	-	-	-	1	1
Whooping Cough	35	35	45	31	51	20	33	44	24
Gonorrhoea	28	21	26	55	23	42	46	24	32
Syphilis	28	47	32	29	27	17	40	51	47

* Made reportable January 1, 1925.
** Made reportable July 1, 1928.

REMARKS: No cases of Asiatic cholera, Glanders, plague, rabies in humans and Yellow fever during the past seven years.

CORRESPONDENCE

A REQUIREMENT IN CONNECTION WITH FILING DRUG RENEWALS

June 12, 1930.

Editor, *New England Journal of Medicine:*

Narcotic Drug renewals must be filed on or before July 1. We find that many of the Doctors keep the original inventory, without its being sworn to before a Notary Public. Both the original and duplicate must be sworn to and the duplicate sent with the short card board form, with a certified check for $1.00, to the Internal Revenue Office, 22 Pearl Street, Boston.

Yours very truly,

GEO. H. CROSBIE.

A PAMPHLET ENTITLED "DIAGNOSTIC AIDS" BY DR. CHADWICK AND DR. McPHEDRAN IS NOW AVAILABLE FOR DISTRIBUTION

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston

June 9, 1930.

Editor, *New England Journal of Medicine:*

As you pointed out in your admirable editorial some weeks ago, the National Tuberculosis Association has put out a pamphlet on childhood tuberculosis entitled "Diagnostic Aids" by Dr. Chadwick of Detroit and Dr. McPhedran of Philadelphia. This is so in line with the work we are doing through our Ten Year Juvenile Tuberculosis Program and the Chadwick Clinics in the schools that an understanding of the pamphlet will clear up so many of

the misunderstandings which still arise between the clinics and the private physicians and we are extremely anxious to get these pamphlets to any physicians interested. The National Association has generously furnished us with a supply of them and they may be obtained by writing directly to us or to the Massachusetts Tuberculosis League, 1149 Little Building, Boston.

Yours truly,
GEORGE H. BIGELOW, M.D.,
Commissioner of Public Health.

INFORMATION WITH RESPECT TO THE AETNA ADJUSTMENT COMPANY IS DESIRED

Massachusetts Medical Society,
Bureau of Information.

Gentlemen:—

I was approached recently by a representative of the Aetna Adjustment Company, 51 Empire Street, Providence, Rhode Island. He proposed to collect my bad bills—for twenty-five per cent. and remit. No contract signed, only an agreement by mouth—"Gentleman's." Is it a reputable concern? What redress have I if they do not remit?

Very truly yours,
A FELLOW OF THE MASSACHUSETTS MEDICAL SOCIETY.

EDITORIAL NOTE:

The Secretary of the Society has honored us by referring the above communication to this office. We do not know anything for or against the Aetna Adjustment Company.

Care should be exercised in placing accounts with collection agencies because it has been known that this type of service requires tact and honesty, and unless the record of a given agency is known to be good an investigation is in order.

A bank or commercial credit agency will often be able to ascertain the desired facts.

A REPORT ON MALPRACTICE SUITS IN CONNECTICUT

New Haven Medical Association
New Haven, Connecticut
362 Whitney Avenue

May 15, 1930.

Editor, *New England Journal of Medicine:*

The enclosed may interest you. Our State Society contemplates taking similar action next week and also having interlocking County Committees.

Sincerely,
FRANK H. WHEELER.

Mr. President and Members of the New Haven Medical Association:

Your Committee appointed to investigate and analyze the situation regarding the prevalence of malpractice suits existing among our members, as stated by the Aetna Life Insurance Company, reports to you as follows:

There seems to exist in the minds of many men a belief or an impression which we often hear expressed in these words: "Let the Insurance Company pay. They have plenty of money." Such an idea is absolutely incorrect. The Insurance Company does not pay. It is the policy holder, the one insured, who always pays.

What actually happens in any form of insurance, be it life, fire, accident, liability or any other, is that a group of persons deposit with an insurance company a certain sum of money which the company agrees to administer in a certain way, the company receiving a just remuneration for its work. If at any time the amount deposited is not enough for the company to carry out the agreement, then the members of the group must contribute more money because the Insurance Company will be compelled to increase the rate on future insurance.

Applying this rule to the matter under investigation by your committee, we find that the members of the New Haven Medical Association have been depositing annually with the Aetna Life Insurance Company, twelve dollars and fifty cents each as a basic rate. In return for this the Aetna Life Insurance Company agreed to defend the contributing members against suits for malpractice and also to pay any damages assessed against them.

We find also that the actual experience in carrying out this agreement during the seven years, 1923 to 1929 inclusive, is as follows: The total amount deposited with the company by the members was $18,127 and the total payments made or to be made in addition to the company's expenses were $44,597. This indicates that the amount deposited or paid by the members should have been from four to five times what it was.

The experience in the entire State exclusive of New Haven shows that the losses in New Haven were, roughly, six times as great as in the rest of the State. It is evident that the reason for this great discrepancy is not that New Haven doctors are six times as negligent as doctors elsewhere or that they are six times as eager to aid in promoting justice.

In accordance with the rule above stated, that it is the insured and not the company who always pays, the Aetna Company has notified this Association that in future the payments must be four to six times more than they have been. That is, from fifty to seventy dollars annually per individual instead of twelve and one-half dollars. The only alternative to this is that the Association shall immediately devise and put into operation some radical method for improving the deplorable condition which now exists regarding malpractice suits in New Haven.

Your Committee understands that a part of its duty is to present recommendations for accomplishing this.

The first task of your Committee was to inquire into the causes of malpractice suits here and elsewhere. On going over the suits brought or threatened during the past seven years we find that the causes may be divided into two general classes, viz., legitimate and illegitimate. Among the legitimate causes are, failure to make use of all the modern aids to a diagnosis such as x-ray, etc., or the omitting to remove all foreign substances before closing a wound

or gross neglect in the subsequent care of the case. Many cases can be saved by the early settlement of legitimate ones but to know which are legitimate cases it is necessary to get full information at an early date. A few cases in which there is a question of doubt regarding negligence, come to trial.

The great bulk of malpractice suits belongs in the illegitimate class. The causes of these suits may be put into two divisions. First, general notoriety. That is, newspaper or person to person information to the effect that somebody instead of paying the doctor brought suit against him and collected a few hundred dollars. We may put this down as causing at least 25% of the suits.

The other division of causes, the one which accounts for fully 75% of all malpractice suits, is the indiscreet or slurring remark of some fellow practitioner. This remark may be due to thoughtlessness and crass stupidity or a desire to obtain a little cheap prestige and some financial gain or it may be due to spite, jealousy and personal venom.

It is a curious situation that a medical gentleman either by word of mouth or physical act should intentionally or unintentionally bring a brother practitioner into disrepute or be the cause of a suit brought against him and indirectly cause obloquy to be cast on the profession of which he himself is a member. Particularly is it surprising because he knows or should know that he will have to contribute his share toward any expenses or monetary damages incurred by the other doctor or insurance company as a result of his indiscretion.

We desire to call the attention of every member to two things which will become of great value in case a suit is brought or threatened against him. First, keep a careful and complete record of every case, making explicit note of any direction given to the patient for him or her to act on and later state whether the patient carried out your directions. Second, in case you advise a certain procedure as an x-ray picture or a laboratory finding and the patient refuses to have it done, get the patient to sign a statement of the fact. If he refuses to do this then make a complete record of it in your history. Many suits have been killed by such records.

It must be remembered that the rights of the patient as well as those of the doctor are to be considered and that no scheme which prevents patients from securing their just rights will ultimately result in the good of the profession. It must also be remembered that no scheme which tends to prevent doctors from testifying as their conscience may dictate is to be considered. It is proper, however, to insist that no member of the profession has the right to criticize the acts of another member without taking the trouble to learn the facts and circumstances of the case as they were presented to that member at the time. With this in mind and after a careful investigation of the entire situation, your Committee offers the following recommendations to the end that improper and unjust criticism will not be voiced and improper and unjust claims and suits for malpractice will be discouraged and that justice will be done every legitimate claimant and equal justice done every member of our Association.

Article VIII

Committee on Medical Ethics and Deportment

Section 1. There shall be a committee of the Association to be known as: The Committee on Medical Ethics and Deportment. It shall consist of eight appointed members and the acting President of the Association as an ex-officio member with voting power. The President shall appoint this committee. When first made up, two members shall be appointed to serve for the term ending at the annual meeting in January 1931, two until the annual meeting in 1932, two until the annual meeting in 1933 and two until the annual meeting in 1934. Thereafter two members shall be appointed each year by the incoming President at the annual meeting to serve for four years. Any vacancy occurring in the committee shall be filled by the President at once.

Sec. 2. It shall be the duty of this Committee whenever any claim of malpractice against a member of the profession is made or threatened to be made, to investigate the case and to advise concerning its handling in coöperation with all those concerned.

Sec. 3. It shall be the policy of this committee and of the Society to respect the privilege of every member to testify in any case as his conscience and opinion may dictate, and the Committee shall not seek to prevent any member from so doing. It shall in all matters act with due regard to the rights of the patient.

Sec. 4. Whenever this Committee is informed that a claim of malpractice is made or threatened, the Chairman or Secretary shall, as soon as possible, summon a meeting of the Committee for the purpose of investigating the circumstances connected with the case. Stenographic minutes shall be kept of all meetings and the proper expenses connected therewith shall be paid by the Association.

Sec. 5. It shall be the duty of every member of this Association to notify the Chairman or Secretary of this Committee of any malpractice claim made or threatened against him or against any other member of the profession and to appear before this Committee at any time when he may be called and give the Committee all the information he may possess regarding the case.

Sec. 6. It shall be the duty of every member of this Association who contemplates assisting in the preparation of a malpractice claim or suit or testifying in any such suit to first notify the Committee of his intention and give to the Committee his reasons therefor.

Sec. 7. No member of this Association shall make a charge for services or accept any compensation for acting with regard to a malpractice claim or suit unless the Committee shall consent.

Sec. 8. It is the policy of this Association that no member shall speak disparagingly of the treat-

ment given by any other member until he has made himself thoroughly familiar with all the circumstances as they existed at the time of the treatment.

SEC. 9. A violation of any of the above rules by a member of this Association shall be deemed just cause for his discipline by the Association.

SEC. 10. It shall be the duty of this Committee to prefer charges in the manner prescribed by Article 6 of the Constitution against any member of the Association who has voiced criticism without justification or without seeking full information as to all the facts or without consulting with the Committee.

FRANK H. WHEELER, *Chairman*,
RALPH A. MCDONNELL,
GEORGE BLUMER,
FRANCIS H. REILLY,
S. J. GOLDBERG,
SAMUEL C. HARVEY,
FRED W. COMSTOCK,
DANIEL F. LEVY,
THOMAS J. SULLIVAN,
THOMAS H. RUSSELL.

The above Article was adopted and made a part of the by-laws. F. H. W.

RECENT DEATH

GRIFFIN—DR. ARTHUR GEORGE GRIFFIN of Shawsheen Village, died suddenly at Rangeley, Me., June 7, 1930, aged 77. Dr. Griffin had gone to Rangeley on a fishing trip apparently in his usual health.

He was born in Litchfield, N. H., October 30, 1853, was educated at the local schools and at Brown University where he was a student from 1873 to 1877. In 1883 he received an M.D. from Harvard and at once was appointed assistant port physician at Boston. He resigned in 1887 and settled in practice in Malden having been full port physician from 1883 to the time of his resignation. From 1888 to 1892 he was city physician to Malden and in 1923 he took the position of physician to the Arlington Mills at Andover, changing his residence to Shawsheen Village.

Dr. Griffin married Mary V. Shirley of Goffstown, N. H. She and one daughter survive him. Dr. Griffin joined the Massachusetts Medical Society in 1884 and was a Fellow of the American Medical Association.

OBITUARY

RESOLUTIONS ADOPTED BY THE GOVERNING BOARD OF THE CARNEY HOSPITAL—MAY 14, 1930—ON THE DEATH OF DR. JOHN F. FENNESSEY

Dr. John F. Fennessey died at his home in Dorchester on April 11, 1930. He was born in Boston on June 24, 1880. His childhood years were spent in Abington, Massachusetts. He received his college education at Notre Dame University, graduating with the class of 1899. His medical education was taken at Harvard, from which school he received his M.D. in 1903, with honors. He served as medical house officer on board the Floating Hospital for two years and at the Boston City Hospital from 1904-1906. In 1906 he started general practice in Dorchester. At various times he served on the staff of St. Elizabeth's Hospital, the Boston City Hospital and the Carney Hospital. He was chief of the medical service at the Carney Hospital from 1919-1928. During the war he served as Captain in the Medical Corps for twenty months at the Embarkation Hospital, Newport News, Virginia. He also devoted some of his time to teaching, serving as instructor and later as Assistant Professor of Medicine in Tufts College Medical School. He is survived by his wife and three children.

During his medical school years he devoted much of his time to the work of the Society of St. Vincent de Paul, visiting poor families in the South End of Boston and obtaining for them food, money and medical attendance. His work here was under the direction of the late Professor Thomas Dwight of Harvard Medical School. Thus early in life, he began to show the qualities of self-sacrifice and sympathy which later on so distinguished his career. For twenty-four years he devoted his useful life to general practice. Like all men of high intellectual attainments, his life was simple and unaffected. He loved the problems and contacts of general practice, with its intimacies and confidences.

The respect and esteem in which he was held was shown at his funeral, when the largest church in Dorchester was filled to overflowing by patients and friends. Even those who knew him intimately held the same high opinion of his character and attainments as did his patients. He was unsparing in service to those whom he attended. He had all the qualities and talents of the ideal physician. His high standards of culture, sympathy and self-sacrifice were ever an inspiration to those who served with him and under him. A large number of internes received their training under him. They were a unit in attesting to the teaching ability and character of the man. All of them feel that they have lost an inspirational leader and advisor. While we regret his passing, we give thanks to God for having brought him into our lives.

E. D. HURLEY, M.D.,
President of the Governing Board,
Carney Hospital, Boston, Mass.

NOTICE

TO DOCTORS INTERESTED IN GOLF

Members of the Middlesex South District Medical Society and registered physicians residing within that District are invited to meet at the Arlmont

Country Club, Arlington Heights, Thursday, June 26, to enjoy a round of golf together and, if thought advisable, to form a Medical Golf Association. Lunch will be served at 1 o'clock followed by a short business meeting. Members may play before or after lunch as they prefer.

Green's Fee, $2.00; Lunch, $1.50; Expense Fee, $1.50.

It is hoped that many members will be present to meet the "boys" even if they cannot play golf. Prizes are to be awarded.

C. T. WARNER,
HENRY W. GODFREY,
STEPHEN M. BIDDLE.

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

March-October — International Medical Postgraduate Courses in Berlin. Complete notice appears on page 853, issue of October 24, 1929.

June 19—New England Hospital for Women and Children. Complete notice appears on page 1175, issue of June 12.

June 22—Medical Veterans' Dinner. Complete notice appears on page 1175, issue of June 12.

June 22-24—Thirty-first annual session of the American Proctologic Society. Complete notice appears on page 1028, issue of May 22.

June 23-27—Annual meeting of the A. M. A. Auxiliary. Detailed notice appears on page 981, issue of May 15.

June 23-July 12—The Fourth Public Health Institute. Complete notice appears on page 839, issue of April 24.

June 24—American Heart Association, Inc. Detailed notice appears on page 934, issue of May 8.

June 30-July 19—Mental Hygiene Institute. Complete notice appears on page 1175, issue of June 12.

July 10-12—The American Association for the Study of Goiter. Complete notice appears on page 935, issue of May 8.

September 4-8—Fifth International Congress on Physiotherapy. Complete notice appears on page 906, issue of October 31, 1929.

September 8-12—Postgraduate week of Physical Therapy. Detailed notice appears on page 1025, issue of May 22.

September 26-27—New England Surgical Society. Detailed notice appears on page 1028, issue of May 22.

October 13-17—Clinical Congress of the American College of Surgeons. Complete notice appears on page 1175, issue of June 12.

October 27—The American Public Health Association. Detailed notice appears on page 1271, issue of December 19, 1929.

March 23-27, 1931 — Fifteenth annual clinical session of the American College of Physicians. Detailed notice appears on page 790, issue of April 17.

BOOK REVIEWS

Policyholders Service Bureau, Metropolitan Life Insurance Company, One Madison Avenue, New York City.

To assist in the establishment of first aid service in industrial plants employing less than five hundred people, the Policyholders Service Bureau of the Metropolitan Life Insurance Company has just released a booklet entitled *First Aid Service in Small Industrial Plants*. This publication is one of a series issued by the Industrial Hygiene service of the Bureau dealing with the health of industrial and commercial workers.

The report, which is illustrated by photographs of first aid rooms maintained by several industrial concerns, discusses the importance of instituting sound measures to insure the prompt and efficient care of small or "minor" injuries. The construction and equipment of a first aid room, as well as the personnel necessary to staff it, are described in some detail.

As the labor laws in a number of the states and provinces have established minimum requirements for the provision of first aid equipment and facilities, and as the existing regulations are so varied that few generalizations regarding them can be made, an appendix has been incorporated into the report giving in outline form a summary of the laws of each state. This outline shows what industries are required by the laws of the various states to make provision for first aid treatment, as well as the standards which have been set up by the legislative bodies of these commonwealths.

In addition to *First Aid Service in Small Industrial Plants*, other publications in the Industrial Health series include *Physical Examinations in Industry* and *Industrial Dental Service*. Copies of these reports may be secured by addressing the Policyholders Service Bureau, Metropolitan Life Insurance Company, New York City.

Civilization and the Cripple. By FREDERICK WATSON. Published by John Bale, Sons and Danielson, Ltd., London.

Perhaps there could be no better criterion of the progress of humanitarian civilization than the degree to which it accepts responsibility for the care of the handicapped. The history of the evolution of this acceptance of responsibility is a very fascinating one. Mr. Watson has delved into this history which he describes in his first chapter and it reads like a novel. The other chapters on "The Influence of the War on the Cripple," "The Education and Training of the Cripple," "The American Scheme," "Prevention and Rehabilitation" and "Limitations of Social Service" not only give much food for thought, but are unusually informing and constructive. The author has for a long time been acutely interested in the problem of the crippled child. His wide experience as a literary man, his general scholarship and his judicial point of view give charm to his writing and authority to his suggestions. As he presents the problem, it concerns not only orthopaedic surgeons and the medical profession in general, but the whole fabric of social and economic life. This is made especially clear in his discussion of the aspects of adult industrial crippling. His humanitarianism is entirely devoid of sentimentalism. The methods of prevention of crippling in children are well known and need only fulfillment, but there will remain, as he clearly shows, a continuing and somewhat alarming army of adult cripples whose mental and physical rehabilitation, as far as wage-earning capacity is concerned, will present indefinitely an important problem. The devising and working out of methods to meet this situation will be greatly stimulated by wide reading of this little book. It deserves a very careful perusal by the public whose pockets are directly affected by these problems and

by every type of worker with the handicapped whose efficiency is so much to be desired.

Getting Well and Staying Well. By JOHN POTTS, M.D. The C. V. Mosby Company, St. Louis, Mo. Price $2.00. Second Edition.

This second edition of Dr. Potts' book is a welcome addition to the literature available for the consumptive and his friends and relatives. There is naturally a certain original flavor in every book of this type; that of Dr. Lawrason Brown, for instance, is particularly useful for patients who are definitely under treatment at a resort such as Saranac Lake, Liberty, New York, or Asheville, North Carolina, while this of Dr. Potts, similar to the book of Dr. Pottenger of Los Angeles, is more suited to patients of the far west and south than those in the northern and eastern parts of this country.

This book is an eminently practical one. It is written in breezy western style with colloquialisms and a certain frank and almost rough phraseology which would not be entirely acceptable with all classes of people. There is an atmosphere of sincerity and honesty about it, however, which the reviewer likes immensely. There are certain subjects considering which one does not often see in print such as Chapter IX, "Conflicts with Family and Friends and Quackery", in which such topics are taken up as "advice-giving friends", "conflicts with and causes of quackery", "burned fingers", and "quacks' solicitors". Chapter XII entitled, "Regret or Happiness", is an interesting one in which he emphasizes the need of education of the public, plain speaking on the part of doctors, the need of facing disagreeable facts, the folly of the incomplete cure, the combination of happiness and early diagnosis, happiness in learning tuberculosis and happiness while recovering. There is much in this book which will prove of great value to the general practitioner as well as to the patient. Naturally, there are various statements with which many physicians and specialists in this line will not be in entire accord but they are few. On the whole the book is to be highly recommended.

The Mechanism of the Larynx. By V. E. NEGUS, M.S. London, F.R.C.S. England. Junior Surgeon for Diseases of the Throat and Nose, King's College Hospital, London. Late Arris and Gale Lecturer, Hunterian Prof. and Hunterian Medalist, Royal College of Surgeons of England. Published by C. V. Mosby Co., St. Louis, Mo. Price $13.50. Introduction by Sir Arthur Keith, F.R.S. 483 pages of text, 160 illustrations. Bibliography including references to 280 articles. 15 tables.

In the introduction, Sir Arthur Keith, charmingly relates how he, while making the daily rounds, came upon a stranger in one of the work rooms attached to the Museum of the Royal College of Surgeons in London. He learned that the stranger was there with all intentions and purpose of a prolonged study. Years passed and the number of anatomical preparations increased "until there was scarcely room to move". In order to study the function of the various organs examined anatomically it became necessary also to resort to other institutions. Thus we find the man with the inquisitive mind periodically at work in the laboratories of the Zoölogical Society, in the Physiological Department of the King's College Hospital, in the Department of Phonetics of the University College, London, and in many other institutions. He scanned all available literature for additional information, and after years of scientifically profitable labour the collected data were ready for publication.

Roughly speaking, the book can be divided into two parts; the first dealing with the development and function of the larynx as a guard to the respiratory tract, the second with phonation. As so often happens in investigative work, it becomes necessary to wander far away from the particular field of study in order to obtain a clear understanding of the subject. So here, the author found it necessary to resort to anthropology, embryology, comparative anatomy, all in order to solve the question; why a larynx? Thus it becomes evident that this organ primarily was developed to be a guard to the respiratory airway to prevent entrance of food and water. With the rise in the animal scale this valve changed from a simple purse string arrangement to the highly complex structure found in the higher animals and man. The habits of various animals brought about suitable modifications to facilitate olfaction, to meet the demands of respiratory exchange, to allow proper deglutition, to help fixation of the thorax in muscular efforts of the upper extremities, etc. The need of sound communication for various purposes was also developed with the habits of the species. Many of the higher animals possess larynges suitable for speech. It is only in man however that this function has reached its full development due to his superior cerebral mechanism.

Although it may seem unnecessary to the laryngologist to possess detailed knowledge of the larynx in the lower animals, yet after reading this book one cannot help but realize that to omit this study from the curriculum would mean a loss to the complete understanding of the organ.

From year to year the literature published for the purpose of furthering the science of laryngology increases. The vast majority of publications seem however to be mostly concerned with methods devised to combat pathological conditions encountered. Comparatively little printed matter deals with fundamental principles. It is therefore a truly pleasurable break in the monotony to encounter a volume, the practical value of which its modest author at times questions, but which undoubtedly reflects the attitude of mind of a genius.

One Hundred and Sixteenth Annual Report of the Trustees of the Massachusetts General Hospital, Including the General Hospital in Boston and the McLean Hospital in Waverley. 1929.

In the Annual Report for the year 1929 of the Trustees of the Massachusetts General Hospital, the outstanding feature is the Baker Memorial. This unit for people of moderate means had not been

opened at the time the report was written, but it was well along toward completion. As a full description of the building and the plans for its operation were published in the *Journal* of March 13, nothing further need be said about it here.

The progress of the Baker Memorial, while by far the most important event in the history of the hospital for 1929, has not interfered with hospital activities along other lines. The pathological laboratory has been rebuilt, and now contains a fine new autopsy amphitheatre, several new small rooms for pathological work, and improved storage facilities for gross and microscopic pathological material.

The Dermatological and South Medical (Syphilis) Services have been combined, with Dr. E. Lawrence Oliver as Chief. A Department of Obstetrics has been created, with Dr. Frederick C. Irving as Chief. Dr. Marius M. Smith-Petersen has been appointed Chief of the Orthopedic Service in place of Dr. Nathaniel Allison, who resigned to become Professor of Surgery in charge of the Orthopedic Division at the University of Chicago.

A Fund to be known as the Maurice Howe Richardson Fund has been created; it is designed to offer added inducements and opportunities to resident surgeons and surgical research workers.

The special clinics are pursuing investigations in gastro-enterology, pneumonia, arthritis, certain problems in metabolism, diabetes, anaphylaxis, cardiac disease, thyroid disease, thoracic conditions, and circulatory diseases of the extremities. Other special studies have been carried out in pernicious anemia, pulmonary complications following operations, spinal anaesthesia, body fluid changes in acute burns, and jaundice. A Postgraduate Course was given by the East Surgical Service in November. Various problems have been studied in the special departments, and in many cases the results have been published.

The McLean Hospital has suffered a great loss by the resignation of Dr. Frederic H. Packard, who had been connected with the institution for twenty-eight years and had been its Superintendent for eleven years.

Proof that the progress of the Hospital will continue is contained in Dr. Washburn's outline of future needs. The chief of these are a new home for nurses, a new Ward Building (this prayer has been answered), x-ray and Laboratory Buildings, Laundry, Workshop and Garage, and further accommodations for male employees and for House Officers.

Reflex Action: A Study in the History of Physiological Psychology. By FRANKLIN FEARING, PH.D. Baltimore: The Williams & Wilkins Co., 1930. XIII+350 pages. Price $6.50.

The concept of reflex action is a very old one, but it is only within the last one hundred years that it has had any great influence upon medicine. Since that time it has become one of the most important physiological reactions in all medicine. Dr. Fearing, a psychologist, has written an excellent history of the development of reflex action from its early beginnings to the present time. The book is a careful compilation of our knowledge of the subject, with many direct quotations and an extensive bibliography. It is a source book of great value to psychologists, physiologists, and those interested in the history of medicine.

Varicose Veins: With Special Reference to the Injection Treatment. By H. O. MCPHEETERS, M.D., F.A.C.S. Published by F. A. Davis Company, Philadelphia. 1930. Price $3.50.

The necessity for a second edition of this excellent work by Dr. McPheeters shows the general interest in the subject of the injection treatment of varicose veins in this country. This edition is considerably improved over the first in that many detailed explanations which were found inadequate in the first edition have been supplemented. A complete chapter is given over to the Trendelenburg Test explaining in detail the method which is not generally well understood. There are some new ideas and the benefit of increased experience is given. The continuation of the study of the pathological examination of sclerosed veins is important.

BOOKS RECEIVED FOR REVIEW

Merck's Index. Fourth Edition. Published by Merck and Co., Inc., Rahway, New Jersey. 585 Pages.

The International Medical Annual. 1930. Edited by Carey F. Coombs and A. Rendle Short. Published by William Wood and Company. 598 Pages. Price $6.00.

Radiologie Clinique du Tube Digestif published under direction of Pierre Duval, J. Ch. Roux and Henri Béclère. Oesophage, Intestin, Foie et Glandes Annexes by J. Gatellier, F. Moutier and P. Porcher. Books I and II. 389 Pages.

Obstetrics for Nurses by Charles B. Reed and Charlotte L. Gregory. Third Edition. Published by C. V. Mosby Company. 399 Pages. Price $3.00.

Physiology and Biochemistry in Modern Medicine by J. R. Macleod. Assisted by R. G. Pearce, A. C. Redfield, N. B. Taylor and J. M. D. Olmsted and others. Sixth Edition. Published by C. V. Mosby Company. 1074 Pages. Price $11.00.

Minor Surgery by Arthur E. Hertzler and Victor E. Chesky. Second Edition. Published by C. V. Mosby Company. 602 Pages. Price $10.00.

Infant Nutrition by Williams McKim Marriott. Published by C. V. Mosby Company. 375 Pages. Price $5.50.

The Clinical Examination of the Nervous System by G. H. Monrad-Krohn. Fifth Edition. Published by Paul B. Hoeber, Inc. 222 Pages. Price $3.50.

Clinical Features of Heart Disease by Leroy Crummer. Introduction by Emanuel Libman. Second Edition. Published by Paul B. Hoeber, Inc. 415 Pages. Price $4.00.

The Action of Muscles by Sir Colin Mackenzie. Second Edition. Published by Paul B. Hoeber, Inc. 288 Pages. Price $3.50.

Rembrandt by Dr. J. G. De Lint. Published by J. Philip Kruseman. 113 Pages.